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(54) Title: SECRETORY MOLECULES

(57) Abstract: The invention provides purified secretory polynucleotides (sptm). Also encompassed are the polypeptides (SPTM) encoded by sptm. The invention also provides for the use of sptm, or complements, oligonucleotides, or fragments thereof in diagnostic assays. The invention further provides for vectors and host cells containing sptm for the expression of SPTM. The invention additionally provides for the use of isolated and purified SPTMto induce antibodies and to screen libraries of compounds and the use of anti-SPTM antibodies in diagnostic assays. Also provided are microarrays containing sptm and methods of use.



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#### SECRETORY MOLECULES

#### TECHNICAL FIELD

The present invention relates to secretory molecules and to the use of these sequences in the diagnosis, study, prevention, and treatment of diseases associated with, as well as effects of exogenous compounds on, the expression of secretory molecules.

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#### BACKGROUND OF THE INVENTION

Both protein transport and secretion are involved in cellular function. Protein transport is mediated by a signal peptide located at the amino terminus of the protein to be transported or secreted. The signal peptide is comprised of about ten to twenty hydrophobic amino acids which target the nascent protein from the ribosome to a particular membrane bound compartment such as the endoplasmic reticulum (ER). Proteins targeted to the ER may either proceed through the secretory pathway or remain in any of the secretory organelles such as the ER, Golgi apparatus, or lysosomes. Proteins that transit through the secretory pathway are either secreted into the extracellular space or retained in the plasma membrane. Proteins that are retained in the plasma membrane contain one or more transmembrane domains, each comprised of about 20 hydrophobic amino acid residues. Proteins that are secreted from the cell are generally synthesized as inactive precursors that are activated by post-translational processing events during transit through the secretory pathway. Such events include glycosylation, proteolysis, and removal of the signal peptide by a signal peptidase. Other events that may occur during protein transport include chaperone-dependent unfolding and folding of the nascent protein and interaction of the protein with a receptor or pore complex. Examples of secretory proteins with amino terminal signal peptides are discussed below and include proteins with important roles in cell-to-cell signaling. Such proteins include transmembrane receptors and cell surface markers, extracellular matrix molecules, cytokines, hormones, growth and differentiation factors, neuropeptides, vasomediators, ion channels, transporters/pumps, and proteases. (Reviewed in Alberts, B. et al. (1994) Molecular Biology of The Cell, Garland Publishing, New York NY, pp. 557-560, 582-592.)

G-protein coupled receptors (GPCRs) comprise a superfamily of integral membrane proteins which transduce extracellular signals. Not all GPCRs contain N-terminal signal peptides. GPCRs include receptors for biogenic amines such as dopamine, epinephrine, histamine, glutamate (metabotropic-type), acetylcholine (muscarinic-type), and serotonin; for lipid mediators of inflammation such as prostaglandins, platelet activating factor, and leukotrienes; for peptide hormones such as calcitonin, C5a anaphylatoxin, follicle stimulating hormone, gonadotropin releasing hormone, neurokinin, oxytocin, and thrombin; and for sensory signal mediators such as retinal photopigments and olfactory

stimulatory molecules. The structure of these highly conserved receptors consists of seven hydrophobic transmembrane regions, cysteine disulfide bridges between the second and third extracellular loops, an extracellular N-terminus, and a cytoplasmic C-terminus. The N-terminus interacts with ligands, the disulfide bridges interact with agonists and antagonists, and the large third intracellular loop interacts with G proteins to activate second messengers such as cyclic AMP, phospholipase C, inositol triphosphate, or ion channels. (Reviewed in Watson, S. and Arkinstall, S. (1994) The G-protein Linked Receptor Facts Book, Academic Press, San Diego CA, pp. 2-6; and Bolander, F.F. (1994) Molecular Endocrinology, Academic Press, San Diego CA, pp. 162-176.)

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Other types of receptors include cell surface antigens identified on leukocytic cells of the immune system. These antigens have been identified using systematic, monoclonal antibody (mAb)-based "shot gun" techniques. These techniques have resulted in the production of hundreds of mAbs directed against unknown cell surface leukocytic antigens. These antigens have been grouped into "clusters of differentiation" based on common immunocytochemical localization patterns in various differentiated and undifferentiated leukocytic cell types. Antigens in a given cluster are presumed to identify a single cell surface protein and are assigned a "cluster of differentiation" or "CD" designation. Some of the genes encoding proteins identified by CD antigens have been cloned and verified by standard molecular biology techniques. CD antigens have been characterized as both transmembrane proteins and cell surface proteins anchored to the plasma membrane via covalent attachment to fatty acid-containing glycolipids such as glycosylphosphatidylinositol (GPI). (Reviewed in Barclay, A.N. et al. (1995) The Leucocyte Antigen Facts Book, Academic Press, San Diego CA, pp. 17-20.)

Matrix proteins (MPs) are transmembrane and extracellular proteins which function in formation, growth, remodeling, and maintenance of tissues and as important mediators and regulators of the inflammatory response. The expression and balance of MPs may be perturbed by biochemical changes that result from congenital, epigenetic, or infectious diseases. In addition, MPs affect leukocyte migration, proliferation, differentiation, and activation in the immune response. MPs are frequently characterized by the presence of one or more domains which may include collagen-like domains, EGF-like domains, immunoglobulin-like domains, and fibronectin-like domains. In addition, MPs may be heavily glycosylated and may contain an Arginine-Glycine-Aspartate (RGD) tripeptide motif which may play a role in adhesive interactions. MPs include extracellular proteins such as fibronectin, collagen, galectin, vitronectin and its proteolytic derivative somatomedin B; and cell adhesion receptors such as cell adhesion molecules (CAMs), cadherins, and integrins. (Reviewed in Ayad, S. et al. (1994) The Extracellular Matrix Facts Book, Academic Press, San Diego CA, pp. 2-16; Ruoslahti, E. (1997) Kidney Int. 51:1413-1417; Sjaastad, M.D. and Nelson, W.J. (1997) BioEssays

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Cytokines are secreted by hematopoietic cells in response to injury or infection. Interleukins, neurotrophins, growth factors, interferons, and chemokines all define cytokine families that work in conjunction with cellular receptors to regulate cell proliferation and differentiation. In addition, cytokines effect activities such as leukocyte migration and function, hematopoietic cell proliferation, temperature regulation, acute response to infection, tissue remodeling, and apoptosis.

Chemokines, in particular, are small chemoattractant cytokines involved in inflammation, leukocyte proliferation and migration, angiogenesis and angiostasis, regulation of hematopoiesis, HIV infectivity, and stimulation of cytokine secretion. Chemokines generally contain 70-100 amino acids and are subdivided into four subfamilies based on the presence of conserved cysteine-based motifs. (Callard, R. and Gearing, A. (1994) <u>The Cytokine Facts Book</u>, Academic Press, New York NY, pp. 181-190, 210-213, 223-227.)

Growth and differentiation factors are secreted proteins which function in intercellular communication. Some factors require oligomerization or association with MPs for activity. Complex interactions among these factors and their receptors trigger intracellular signal transduction pathways that stimulate or inhibit cell division, cell differentiation, cell signaling, and cell motility. Most growth and differentiation factors act on cells in their local environment (paracrine signaling). There are three broad classes of growth and differentiation factors. The first class includes the large polypeptide growth factors such as epidermal growth factor, fibroblast growth factor, transforming growth factor, insulin-like growth factor, and platelet-derived growth factor. The second class includes the hematopoietic growth factors such as the colony stimulating factors (CSFs). Hematopoietic growth factors stimulate the proliferation and differentiation of blood cells such as B-lymphocytes, T-lymphocytes, erythrocytes, platelets, eosinophils, basophils, neutrophils, macrophages, and their stem cell precursors. The third class includes small peptide factors such as bombesin, vasopressin, oxytocin, endothelin, transferrin, angiotensin II, vasoactive intestinal peptide, and bradykinin which function as hormones to regulate cellular functions other than proliferation.

Growth and differentiation factors play critical roles in neoplastic transformation of cells in vitro and in tumor progression in vivo. Inappropriate expression of growth factors by tumor cells may contribute to vascularization and metastasis of tumors. During hematopoiesis, growth factor misregulation can result in anemias, leukemias, and lymphomas. Certain growth factors such as interferon are cytotoxic to tumor cells both in vivo and in vitro. Moreover, some growth factors and growth factor receptors are related both structurally and functionally to oncoproteins. In addition, growth factors affect transcriptional regulation of both proto-oncogenes and oncosuppressor genes. (Reviewed in Pimentel, E. (1994) Handbook of Growth Factors, CRC Press, Ann Arbor MI, pp. 1-9.)

Proteolytic enzymes or proteases either activate or deactivate proteins by hydrolyzing peptide bonds. Proteases are found in the cytosol, in membrane-bound compartments, and in the extracellular space. The major families are the zinc, serine, cysteine, thiol, and carboxyl proteases.

Ion channels, ion pumps, and transport proteins mediate the transport of molecules across cellular membranes. Transport can occur by a passive, concentration-dependent mechanism or can be linked to an energy source such as ATP hydrolysis. Symporters and antiporters transport ions and small molecules such as amino acids, glucose, and drugs. Symporters transport molecules and ions unidirectionally, and antiporters transport molecules and ions bidirectionally. Transporter superfamilies include facilitative transporters and active ATP-binding cassette transporters which are involved in multiple-drug resistance and the targeting of antigenic peptides to MHC Class I molecules. These transporters bind to a specific ion or other molecule and undergo a conformational change in order to transfer the ion or molecule across the membrane. (Reviewed in Alberts, B. et al. (1994) Molecular Biology of The Cell, Garland Publishing, New York NY, pp. 523-546.)

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Ion channels are formed by transmembrane proteins which create a lined passageway across the membrane through which water and ions, such as Na<sup>+</sup>, K<sup>+</sup>, Ca<sup>2+</sup>, and Cl<sup>-</sup>, enter and exit the cell. For example, chloride channels are involved in the regulation of the membrane electric potential as well as absorption and secretion of ions across the membrane. Chloride channels also regulate the internal pH of membrane-bound organelles.

Ion pumps are ATPases which actively maintain membrane gradients. Ion pumps are classified as P, V, or F according to their structure and function. All have one or more binding sites for ATP in their cytosolic domains. The P-class ion pumps include Ca<sup>2+</sup> ATPase and Na<sup>+</sup>/K<sup>+</sup> ATPase and function in transporting H<sup>+</sup>, Na<sup>+</sup>, K<sup>+</sup>, and Ca<sup>2+</sup> ions. P-class pumps consist of two α and two β transmembrane subunits. The V- and F-class ion pumps have similar structures but transport only H<sup>+</sup>. F class H<sup>+</sup> pumps mediate transport across the membranes of mitochondria and chloroplasts, while V-class H<sup>+</sup> pumps regulate acidity inside lysosomes, endosomes, and plant vacuoles.

A family of structurally related intrinsic membrane proteins known as facilitative glucose transporters catalyze the movement of glucose and other selected sugars across the plasma membrane. The proteins in this family contain a highly conserved, large transmembrane domain comprised of 12 α-helices, and several weakly conserved, cytoplasmic and exoplasmic domains. (Pessin, J.E. and Bell, G.I. (1992) Annu. Rev. Physiol. 54:911-930.)

Amino acid transport is mediated by Na<sup>+</sup> dependent amino acid transporters. These transporters are involved in gastrointestinal and renal uptake of dietary and cellular amino acids and in neuronal reuptake of neurotransmitters. Transport of cationic amino acids is mediated by the system y+ family and the cationic amino acid transporter (CAT) family. Members of the CAT family share a

high degree of sequence homology, and each contains 12-14 putative transmembrane domains. (Ito, K. and Groudine, M. (1997) J. Biol. Chem. 272:26780-26786.)

Hormones are secreted molecules that travel through the circulation and bind to specific receptors on the surface of, or within, target cells. Although they have diverse biochemical compositions and mechanisms of action, hormones can be grouped into two categories. One category includes small lipophilic hormones that diffuse through the plasma membrane of target cells, bind to cytosolic or nuclear receptors, and form a complex that alters gene expression. Examples of these molecules include retinoic acid, thyroxine, and the cholesterol-derived steroid hormones such as progesterone, estrogen, testosterone, cortisol, and aldosterone. The second category includes hydrophilic hormones that function by binding to cell surface receptors that transduce signals across the plasma membrane. Examples of such hormones include amino acid derivatives such as catecholamines and peptide hormones such as glucagon, insulin, gastrin, secretin, cholecystokinin, adrenocorticotropic hormone, follicle stimulating hormone, luteinizing hormone, thyroid stimulating hormone, and vasopressin. (See, for example, Lodish et al. (1995) Molecular Cell Biology, Scientific American Books Inc., New York NY, pp. 856-864.)

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Neuropeptides and vasomediators (NP/VM) comprise a large family of endogenous signaling molecules. Included in this family are neuropeptides and neuropeptide hormones such as bombesin, neuropeptide Y, neurotensin, neuromedin N, melanocortins, opioids, galanin, somatostatin, tachykinins, urotensin II and related peptides involved in smooth muscle stimulation, vasopressin, vasoactive intestinal peptide, and circulatory system-borne signaling molecules such as angiotensin, complement, calcitonin, endothelins, formyl-methionyl peptides, glucagon, cholecystokinin and gastrin. NP/VMs can transduce signals directly, modulate the activity or release of other neurotransmitters and hormones, and act as catalytic enzymes in cascades. The effects of NP/VMs range from extremely brief to long-lasting. (Reviewed in Martin, C.R. et al. (1985) Endocrine Physiology, Oxford University Press, New York, NY, pp. 57-62.)

The discovery of new secretory molecules provide new compositions which are useful in the diagnosis, study, prevention, and treatment of diseases associated with, as well as effects of exogenous compounds on, cell signaling and the expression of secretory molecules.

#### SUMMARY OF THE INVENTION

Embodiments of the invention relate to nucleic acid sequences comprising human polynucleotides encoding secretory polypeptides that can contain signal peptides and/or transmembrane domains. These human polynucleotides (sptm) as presented in the Sequence Listing uniquely identify partial or full length genes encoding structural, functional, and regulatory polypeptides

involved in cell signaling.

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An embodiment of the invention provides an isolated polynucleotide selected from the group consisting of a) a polynucleotide comprising a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; b) a polynucleotide comprising a naturally occurring polynucleotide sequence at least 90% identical to a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; c) a polynucleotide complementary to the polynucleotide of a); d) a polynucleotide complementary to the polynucleotide of b); and e) an RNA equivalent of a) through d). In one alternative, the polynucleotide comprises a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567. In another alternative, the polynucleotide comprises at least 30 contiguous nucleotides of a polynucleotide selected from the group consisting of a) a polynucleotide comprising a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; b) a polynucleotide comprising a naturally occurring polynucleotide comprising a polynucleotide sequence at least 90% identical to a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; c) a polynucleotide complementary to the polynucleotide of a); d) a polynucleotide complementary to the polynucleotide of b); and e) an RNA equivalent of a) through d). In another alternative, the polynucleotide comprises at least 60 contiguous nucleotides of a polynucleotide selected from the group consisting of a) a polynucleotide comprising a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; b) a polynucleotide comprising a naturally occurring polynucleotide comprising a polynucleotide sequence at least 90% identical to a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; c) a polynucleotide complementary to the polynucleotide of a); d) a polynucleotide complementary to the polynucleotide of b); and e) an RNA equivalent of a) through d). Another embodiment provides a composition for the detection of expression of secretory polynucleotides comprising at least one isolated polynucleotide comprising a polynucleotide selected from the group consisting of a) a polynucleotide comprising a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; b) a polynucleotide comprising a naturally occurring polynucleotide sequence at least 90% identical to a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; c) a polynucleotide complementary to the polynucleotide of a); d) a polynucleotide complementary to the polynucleotide of b); and e) an RNA equivalent of a) through d); and a detectable label.

An embodiment of the invention also provides a method for detecting a target polynucleotide in a sample, said target polynucleotide having a polynucleotide sequence of a polynucleotide selected from the group consisting of a) a polynucleotide comprising a polynucleotide sequence of a polynucleotide selected from the group consisting of SEQ ID NO:1-567; b) a polynucleotide comprising a naturally occurring polynucleotide sequence at least 90% identical to a polynucleotide

sequence selected from the group consisting of SEQ ID NO:1-567; c) a polynucleotide complementary to the polynucleotide of a); d) a polynucleotide complementary to the polynucleotide of b); and e) an RNA equivalent of a) through d). The method comprises a) amplifying said target polynucleotide or fragment thereof using polymerase chain reaction amplification, and b) detecting the presence or absence of said amplified target polynucleotide or fragment thereof, and, optionally, if present, the amount thereof.

Another embodiment also provides a method for detecting a target polynucleotide in a sample, said target polynucleotide having a polynucleotide sequence of a polynucleotide selected from the group consisting of a) a polynucleotide comprising a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; b) a polynucleotide comprising a naturally occurring polynucleotide sequence at least 90% identical to a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; c) a polynucleotide complementary to the polynucleotide of a); d) a polynucleotide complementary to the polynucleotide of b); and e) an RNA equivalent of a) through d). The method comprises a) hybridizing the sample with a probe comprising at least 20 contiguous nucleotides comprising a sequence complementary to said target polynucleotide in the sample, and which probe specifically hybridizes to said target polynucleotide, under conditions whereby a hybridization complex is formed between said probe and said target polynucleotide, and b) detecting the presence or absence of said hybridization complex, and, optionally, if present, the amount thereof. In an alternative embodiment, the invention provides a composition comprising a target polynucleotide of the method, wherein said probe comprises at least 30 contiguous nucleotides. In an alternative embodiment, the invention provides a composition comprising a target polynucleotide of the method, wherein said probe comprises at least 60 contiguous nucleotides.

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Another embodiment provides a recombinant polynucleotide comprising a promoter sequence operably linked to an isolated polynucleotide selected from the group consisting of a) a polynucleotide comprising a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; b) a polynucleotide comprising a naturally occurring polynucleotide sequence at least 90% identical to a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; c) a polynucleotide complementary to the polynucleotide of a); d) a polynucleotide complementary to the polynucleotide of b); and e) an RNA equivalent of a) through d). In an alternative embodiment, the invention provides a cell transformed with the recombinant polynucleotide. In another alternative, the invention provides a transgenic organism comprising the recombinant polynucleotide.

Yet another embodiment provides a method for producing a secretory polypeptide, the method comprising a) culturing a cell under conditions suitable for expression of the secretory polypeptide, wherein said cell is transformed with a recombinant polynucleotide, said recombinant polynucleotide

comprising an isolated polynucleotide selected from the group consisting of i) a polynucleotide comprising a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; ii) a polynucleotide comprising a naturally occurring polynucleotide sequence at least 90% identical to a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; iii) a polynucleotide complementary to the polynucleotide of i); iv) a polynucleotide complementary to the polynucleotide of ii); and v) an RNA equivalent of i) through iv), and b) recovering the secretory polypeptide so expressed. The invention additionally provides a method wherein the polypeptide has an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146.

Still another embodiment provides an isolated secretory polypeptide (SPTM) encoded by at least one polynucleotide comprising a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567. The invention further provides a method of screening for a test compound that specifically binds to the polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146. The method comprises a) combining the polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146 with at least one test compound under suitable conditions, and b) detecting binding of the polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146 to the test compound, thereby identifying a compound that specifically binds to the polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146.

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Still yet another embodiment provides a microarray wherein at least one element of the microarray is an isolated polynucleotide comprising at least 30 contiguous nucleotides of a polynucleotide selected from the group consisting of a) a polynucleotide comprising a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; b) a polynucleotide comprising a naturally occurring polynucleotide sequence at least 90% identical to a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; c) a polynucleotide complementary to the polynucleotide of a); d) a polynucleotide complementary to the polynucleotide of b); and e) an RNA equivalent of a) through d). The invention also provides a method for generating a transcript image of a sample which contains polynucleotides. The method comprises a) labeling the polynucleotides of the sample, b) contacting the elements of the microarray with the labeled polynucleotides of the sample under conditions suitable for the formation of a hybridization complex, and c) quantifying the expression of the polynucleotides in the sample.

Still yet another embodiment provides a method for screening a compound for effectiveness in altering expression of a target polynucleotide, wherein said target polynucleotide comprises a polynucleotide selected from the group consisting of a) a polynucleotide comprising a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; b) a polynucleotide comprising a

naturally occurring polynucleotide sequence at least 90% identical to a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; c) a polynucleotide complementary to the polynucleotide of a); d) a polynucleotide complementary to the polynucleotide of b); and e) an RNA equivalent of a) through d). The method comprises a) exposing a sample comprising the target polynucleotide to a compound, b) detecting altered expression of the target polynucleotide, and c) comparing the expression of the target polynucleotide in the presence of varying amounts of the compound and in the absence of the compound.

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Another embodiment provides a method for assessing toxicity of a test compound, said method comprising a) treating a biological sample containing nucleic acids with the test compound; b) hybridizing the nucleic acids of the treated biological sample with a probe comprising at least 20 contiguous nucleotides of a polynucleotide selected from the group consisting of i) a polynucleotide comprising a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; ii) a polynucleotide comprising a naturally occurring polynucleotide sequence at least 90% identical to a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; iii) a polynucleotide complementary to the polynucleotide of i); iv) a polynucleotide complementary to the polynucleotide of ii); and v) an RNA equivalent of i) through iv). Hybridization occurs under conditions whereby a specific hybridization complex is formed between said probe and a target polynucleotide in the biological sample, said target polynucleotide comprising a polynucleotide sequence of a polynucleotide selected from the group consisting of i) a polynucleotide comprising a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; ii) a polynucleotide comprising a naturally occurring polynucleotide sequence at least 90% identical to a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567; iii) a polynucleotide complementary to the polynucleotide of i); iv) a polynucleotide complementary to the polynucleotide of ii); and v) an RNA equivalent of i) through iv), and alternatively, the target polynucleotide comprises a polynucleotide sequence of a fragment of a polynucleotide selected from the group consisting of i-v above; c) quantifying the amount of hybridization complex; and d) comparing the amount of hybridization complex in the treated biological sample with the amount of hybridization complex in an untreated biological sample, wherein a difference in the amount of hybridization complex in the treated biological sample is indicative of toxicity of the test compound.

Another embodiment provides an isolated polypeptide selected from the group consisting of a) a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, b) a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, c) a biologically active fragment of a polypeptide having an amino acid sequence selected from the group

consisting of SEQ ID NO:568-1146, and d) an immunogenic fragment of a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146. In an alternative embodiment, the invention provides an isolated polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146.

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Still another embodiment provides an isolated polynucleotide encoding a polypeptide selected from the group consisting of a) a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, b) a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, c) a biologically active fragment of a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, and d) an immunogenic fragment of a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146. In one alternative, the polynucleotide encodes a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146. In another alternative, the polynucleotide comprises a polynucleotide sequence selected from the group consisting of SEQ ID NO:568-1146.

Another embodiment provides an isolated antibody which specifically binds to a polypeptide selected from the group consisting of a) a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, b) a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, c) a biologically active fragment of a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, and d) an immunogenic fragment of a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146.

Another embodiment provides a composition comprising a polypeptide selected from the group consisting of a) a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, b) a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, c) a biologically active fragment of a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, and d) an immunogenic fragment of a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, and a pharmaceutically acceptable excipient. In an embodiment, the composition comprises a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146. Another embodiment provides a method of treating a disease or condition associated with decreased expression of functional SPTM, comprising administering to a patient in need of such treatment the composition.

Another embodiment provides a method for screening a compound for effectiveness as an agonist of a polypeptide selected from the group consisting of a) a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, b) a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, c) a biologically active fragment of a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, and d) an immunogenic fragment of a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146. The method comprises a) exposing a sample comprising the polypeptide to a compound, and b) detecting agonist activity in the sample. In an alternative embodiment, the invention provides a composition comprising an agonist compound identified by the method and a pharmaceutically acceptable excipient. In another alternative embodiment, the invention provides a method of treating a disease or condition associated with decreased expression of functional SPTM, comprising administering to a patient in need of such treatment the composition.

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Another embodiment provides a method for screening a compound for effectiveness as an antagonist of a polypeptide selected from the group consisting of a) a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, b) a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, c) a biologically active fragment of a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, and d) an immunogenic fragment of a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146. The method comprises a) exposing a sample comprising the polypeptide to a compound, and b) detecting antagonist activity in the sample. In an alternative, the invention provides a composition comprising an antagonist compound identified by the method and a pharmaceutically acceptable excipient. In another alternative, the invention provides a method of treating a disease or condition associated with overexpression of functional SPTM, comprising administering to a patient in need of such treatment the composition.

Another embodiment provides a method of screening for a compound that modulates the activity of a polypeptide selected from the group consisting of a) a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, b) a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, c) a biologically active fragment of a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, and d) an immunogenic fragment of a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146. The method comprises a) combining the polypeptide

with at least one test compound under conditions permissive for the activity of the polypeptide, b) assessing the activity of the polypeptide in the presence of the test compound, and c) comparing the activity of the polypeptide in the presence of the test compound with the activity of the polypeptide in the absence of the test compound, wherein a change in the activity of the polypeptide in the presence of the test compound is indicative of a compound that modulates the activity of the polypeptide.

#### **DESCRIPTION OF THE TABLES**

Table 1 shows the sequence identification numbers (SEQ ID NO:s) and template identification numbers (template IDs) corresponding to the polynucleotides of the present invention, along with the sequence identification numbers (SEQ ID NO:s) and open reading frame identification numbers (ORF IDs) corresponding to polypeptides encoded by the template ID.

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Table 2 shows the sequence identification numbers (SEQ ID NO:s) and template identification numbers (template IDs) corresponding to the polynucleotides of the present invention, along with polynucleotide segments of each template sequence as defined by the indicated "start" and "stop" nucleotide positions. The reading frames of the polynucleotide segments are shown, and the polypeptides encoded by the polynucleotide segments constitute either signal peptide (SP) or transmembrane (TM) domains, as indicated. For TM domains, the membrane topology of the encoded polypeptide sequence is indicated as being transmembrane or on the cytosolic or non-cytosolic side of the cell membrane or organelle.

Table 3 shows the sequence identification numbers and template identification numbers (template IDs) corresponding to the polynucleotides of the present invention, along with component sequence identification spans corresponding to each template. The component sequences, which were used to assemble the template sequences, are defined by the spans indicating the nucleotide positions along each template.

Table 4 shows the tissue distribution profiles for the templates of the invention.

Table 5 shows the sequence identification numbers (SEQ ID NO:s) corresponding to the polypeptides of the present invention, along with the reading frames used to obtain the polypeptide segments, the lengths of the polypeptide segments, the "start" and "stop" nucleotide positions of the polynucleotide sequences used to define the encoded polypeptide segments, the GenBank hits (GI Numbers), probability scores, and functional annotations corresponding to the GenBank hits.

Table 6 summarizes the bioinformatics tools which are useful for analysis of the polynucleotides of the present invention. The first column of Table 6 lists analytical tools, programs, and algorithms, the second column provides brief descriptions thereof, the third column presents appropriate references, all of which are incorporated by reference herein in their entirety, and the fourth column presents, where applicable, the scores, probability values, and other parameters used to

evaluate the strength of a match between two sequences (the higher the score, the greater the homology between two sequences).

#### DETAILED DESCRIPTION OF THE INVENTION

Before the nucleic acid sequences and methods are presented, it is to be understood that this invention is not limited to the particular machines, methods, and materials described. Although particular embodiments are described, machines, methods, and materials similar or equivalent to these embodiments may be used to practice the invention. The preferred machines, methods, and materials set forth are not intended to limit the scope of the invention which is limited only by the appended claims.

The singular forms "a", "an", and "the" include plural reference unless the context clearly dictates otherwise. All technical and scientific terms have the meanings commonly understood by one of ordinary skill in the art. All publications are incorporated by reference for the purpose of describing and disclosing the cell lines, vectors, and methodologies which are presented and which might be used in connection with the invention. Nothing in the specification is to be construed as an admission that the invention is not entitled to antedate such disclosure by virtue of prior invention.

#### **Definitions**

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As used herein, the lower case "sptm" refers to a nucleic acid sequence, while the upper case "SPTM" refers to an amino acid sequence encoded by sptm. A "full-length" sptm refers to a nucleic acid sequence containing the entire coding region of a gene endogenously expressed in human tissue.

"Adjuvants" are materials such as Freund's adjuvant, mineral gels (aluminum hydroxide), and surface active substances (lysolecithin, pluronic polyols, polyanions, peptides, oil emulsions, keyhole limpet hemocyanin, and dinitrophenol) which may be administered to increase a host's immunological response.

"Allele" refers to an alternative form of a nucleic acid sequence. Alleles result from a "mutation," a change or an alternative reading of the genetic code. Any given gene may have none, one, or many allelic forms. Mutations which give rise to alleles include deletions, additions, or substitutions of nucleotides. Each of these changes may occur alone, or in combination with the others, one or more times in a given nucleic acid sequence. The present invention encompasses allelic sptm.

An "allelic variant" is an alternative form of the gene encoding SPTM. Allelic variants may result from at least one mutation in the nucleic acid sequence and may result in altered mRNAs or in polypeptides whose structure or function may or may not be altered. A gene may have none, one, or many allelic variants of its naturally occurring form. Common mutational changes which give rise to

allelic variants are generally ascribed to natural deletions, additions, or substitutions of nucleotides. Each of these types of changes may occur alone, or in combination with the others, one or more times in a given sequence.

"Altered" nucleic acid sequences encoding SPTM include those sequences with deletions, insertions, or substitutions of different nucleotides, resulting in a polypeptide the same as SPTM or a polypeptide with at least one functional characteristic of SPTM. Included within this definition are polymorphisms which may or may not be readily detectable using a particular oligonucleotide probe of the polynucleotide encoding SPTM, and improper or unexpected hybridization to allelic variants, with a locus other than the normal chromosomal locus for the polynucleotide sequence encoding SPTM. The encoded protein may also be "altered," and may contain deletions, insertions, or substitutions of amino acid residues which produce a silent change and result in a functionally equivalent SPTM. Deliberate amino acid substitutions may be made on the basis of similarity in polarity, charge, solubility, hydrophobicity, hydrophilicity, and/or the amphipathic nature of the residues, as long as the biological or immunological activity of SPTM is retained. For example, negatively charged amino acids may include aspartic acid and glutamic acid, and positively charged amino acids may include lysine and arginine. Amino acids with uncharged polar side chains having similar hydrophilicity values may include: asparagine and glutamine; and serine and threonine. Arnino acids with uncharged side chains having similar hydrophilicity values may include: leucine, isoleucine, and valine; glycine and alanine; and phenylalanine and tyrosine.

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"Amino acid sequence" refers to a peptide, a polypeptide, or a protein of either natural or synthetic origin. The amino acid sequence is not limited to the complete, endogenous amino acid sequence and may be a fragment, epitope, variant, or derivative of a protein expressed by a nucleic acid sequence.

"Amplification" refers to the production of additional copies of a sequence and is carried out using polymerase chain reaction (PCR) technologies well known in the art.

"Antibody" refers to intact molecules as well as to fragments thereof, such as Fab, F(ab')<sub>2</sub>, and Fv fragments, which are capable of binding the epitopic determinant. Antibodies that bind SPTM polypeptides can be prepared using intact polypeptides or using fragments containing small peptides of interest as the immunizing antigen. The polypeptide or peptide used to immunize an animal (e.g., a mouse, a rat, or a rabbit) can be derived from the translation of RNA, or synthesized chemically, and can be conjugated to a carrier protein if desired. Commonly used carriers that are chemically coupled to peptides include bovine serum albumin, thyroglobulin, and keyhole limpet hemocyanin (KLH). The coupled peptide is then used to immunize the animal.

The term "aptamer" refers to a nucleic acid or oligonucleotide molecule that binds to a specific molecular target. Aptamers are derived from an in vitro evolutionary process (e.g., SELEX

(Systematic Evolution of Ligands by EXponential Enrichment), described in U.S. Patent No. 5,270,163), which selects for target-specific aptamer sequences from large combinatorial libraries. Aptamer compositions may be double-stranded or single-stranded, and may include deoxyribonucleotides, ribonucleotides, nucleotide derivatives, or other nucleotide-like molecules. The nucleotide components of an aptamer may have modified sugar groups (e.g., the 2'-OH group of a ribonucleotide may be replaced by 2'-F or 2'-NH<sub>2</sub>), which may improve a desired property, e.g., resistance to nucleases or longer lifetime in blood. Aptamers may be conjugated to other molecules, e.g., a high molecular weight carrier to slow clearance of the aptamer from the circulatory system. Aptamers may be specifically cross-linked to their cognate ligands, e.g., by photo-activation of a cross-linker. (See, e.g., Brody, E.N. and L. Gold (2000) J. Biotechnol. 74:5-13.)

The term "intramer" refers to an aptamer which is expressed in vivo. For example, a vaccinia virus-based RNA expression system has been used to express specific RNA aptamers at high levels in the cytoplasm of leukocytes (Blind, M. et al. (1999) Proc. Natl Acad. Sci. USA 96:3606-3610).

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The term "spiegelmer" refers to an aptamer which includes L-DNA, L-RNA, or other left-handed nucleotide derivatives or nucleotide-like molecules. Aptamers containing left-handed nucleotides are resistant to degradation by naturally occurring enzymes, which normally act on substrates containing right-handed nucleotides.

"Antisense sequence" refers to a sequence capable of specifically hybridizing to a target sequence. The antisense sequence may include DNA, RNA, or any nucleic acid mimic or analog such as peptide nucleic acid (PNA); oligonucleotides having modified backbone linkages such as phosphorothioates, methylphosphonates, or benzylphosphonates; oligonucleotides having modified sugar groups such as 2'-methoxyethyl sugars or 2'-methoxyethoxy sugars; or oligonucleotides having modified base.

"Antisense technology" refers to any technology which relies on the specific hybridization of an antisense sequence to a target sequence.

A "bin" is a portion of computer memory space used by a computer program for storage of data, and bounded in such a manner that data stored in a bin may be retrieved by the program.

"Biologically active" refers to an amino acid sequence having a structural, regulatory, or biochemical function of a naturally occurring amino acid sequence.

"Clone joining" is a process for combining gene bins based upon the bins' containing sequence information from the same clone. The sequences may assemble into a primary gene transcript as well as one or more splice variants.

"Complementary" describes the relationship between two single-stranded nucleic acid sequences that annual by base-pairing (5'-A-G-T-3' pairs with its complement 3'-T-C-A-5').

A "component sequence" is a nucleic acid sequence selected by a computer program such as

PHRED and used to assemble a consensus or template sequence from one or more component sequences.

A "consensus sequence" or "template sequence" is a nucleic acid sequence which has been assembled from overlapping sequences, using a computer program for fragment assembly such as the GELVIEW fragment assembly system (Genetics Computer Group (GCG), Madison WI) or using a relational database management system (RDMS).

"Conservative amino acid substitutions" are those substitutions that, when made, least interfere with the properties of the original protein, i.e., the structure and especially the function of the protein is conserved and not significantly changed by such substitutions. The table below shows amino acids which may be substituted for an original amino acid in a protein and which are regarded as conservative substitutions.

	Original Residue	Conservative Substitution
	Ala	Gly, Ser
15	Arg	His, Lys
	Asn	Asp, Gln, His
	Asp	Asn, Glu
	Cys	Ala, Ser
	Gln	Asn, Glu, His
20	Glu	Asp, Gln, His
•	Gly	Ala
	His	Asn, Arg, Gln, Glu
	, <b>Il</b> e	Leu, Val
	Leu	Ile, Val
25	Lys	Arg, Gln, Glu
	Met	Leu, Ile
	Phe	His, Met, Leu, Trp, Tyr
	Ser	Cys, Thr
	Thr	Ser, Val
30	Trp	Phe, Tyr
	Tyr	His, Phe, Trp
	Val	Ile, Leu, Thr

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Conservative substitutions generally maintain (a) the structure of the polypeptide backbone in the area of the substitution, for example, as a beta sheet or alpha helical conformation, (b) the charge or hydrophobicity of the molecule at the target site, or (c) the bulk of the side chain.

"Deletion" refers to a change in either a nucleic or amino acid sequence in which at least one nucleotide or amino acid residue, respectively, is absent.

"Derivative" refers to the chemical modification of a nucleic acid sequence, such as by replacement of hydrogen by an alkyl, acyl, amino, hydroxyl, or other group.

"Differential expression" refers to increased or upregulated; or decreased, downregulated, or absent gene or protein expression, determined by comparing at least two different samples. Such comparisons may be carried out between, for example, a treated and an untreated sample, or a diseased and a normal sample.

The terms "element" and "array element" refer to a polynucleotide, polypeptide, or other chemical compound having a unique and defined position on a microarray.

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The term "modulate" refers to a change in the activity of SPTM. For example, modulation may cause an increase or a decrease in protein activity, binding characteristics, or any other biological, functional, or immunological properties of SPTM.

"E-value" refers to the statistical probability that a match between two sequences occurred by chance.

"Exon shuffling" refers to the recombination of different coding regions (exons). Since an exon may represent a structural or functional domain of the encoded protein, new proteins may be assembled through the novel reassortment of stable substructures, thus allowing acceleration of the evolution of new protein functions.

A "fragment" is a unique portion of sptm or SPTM which is identical in sequence to but shorter in length than the parent sequence. A fragment may comprise up to the entire length of the defined sequence, minus one nucleotide/amino acid residue. For example, a fragment may comprise from 10 to 1000 contiguous amino acid residues or nucleotides. A fragment used as a probe, primer, antigen, therapeutic molecule, or for other purposes, may be at least 5, 10, 15, 16, 20, 25, 30, 40, 50, 60, 75, 100, 150, 250 or at least 500 contiguous amino acid residues or nucleotides in length. Fragments may be preferentially selected from certain regions of a molecule. For example, a polypeptide fragment may comprise a certain length of contiguous amino acids selected from the first 250 or 500 amino acids (or first 25% or 50%) of a polypeptide as shown in a certain defined sequence. Clearly these lengths are exemplary, and any length that is supported by the specification, including the Sequence Listing and the figures, may be encompassed by the present embodiments.

A fragment of sptm comprises a region of unique polynucleotide sequence that specifically identifies sptm, for example, as distinct from any other sequence in the same genome. A fragment of sptm is useful, for example, in hybridization and amplification technologies and in analogous methods that distinguish sptm from related polynucleotide sequences. The precise length of a fragment of sptm and the region of sptm to which the fragment corresponds are routinely determinable by one of ordinary skill in the art based on the intended purpose for the fragment.

A fragment of SPTM is encoded by a fragment of sptm. A fragment of SPTM comprises a region of unique amino acid sequence that specifically identifies SPTM. For example, a fragment of SPTM is useful as an immunogenic peptide for the development of antibodies that specifically

recognize SPTM. The precise length of a fragment of SPTM and the region of SPTM to which the fragment corresponds are routinely determinable by one of ordinary skill in the art based on the intended purpose for the fragment.

A "full length" nucleotide sequence is one containing at least a start site for translation to a protein sequence, followed by an open reading frame and a stop site, and encoding a "full length" polypeptide.

"Hit" refers to a sequence whose annotation will be used to describe a given template. Criteria for selecting the top hit are as follows: if the template has one or more exact nucleic acid matches, the top hit is the exact match with highest percent identity. If the template has no exact matches but has significant protein hits, the top hit is the protein hit with the lowest E-value. If the template has no significant protein hits, but does have significant non-exact nucleotide hits, the top hit is the nucleotide hit with the lowest E-value.

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"Homology" refers to sequence similarity either between a reference nucleic acid sequence and at least a fragment of an sptm or between a reference amino acid sequence and a fragment of an SPTM.

"Hybridization" refers to the process by which a strand of nucleotides anneals with a complementary strand through base pairing. Specific hybridization is an indication that two nucleic acid sequences share a high degree of identity. Specific hybridization complexes form under defined annealing conditions, and remain hybridized after the "washing" step. The defined hybridization conditions include the annealing conditions and the washing step(s), the latter of which is particularly important in determining the stringency of the hybridization process, with more stringent conditions allowing less non-specific binding, i.e., binding between pairs of nucleic acid probes that are not perfectly matched. Permissive conditions for annealing of nucleic acid sequences are routinely determinable and may be consistent among hybridization experiments, whereas wash conditions may be varied among experiments to achieve the desired stringency.

Generally, stringency of hybridization is expressed with reference to the temperature under which the wash step is carried out. Generally, such wash temperatures are selected to be about 5°C to 20°C lower than the thermal melting point (T<sub>m</sub>) for the specific sequence at a defined ionic strength and pH. The T<sub>m</sub> is the temperature (under defined ionic strength and pH) at which 50% of the target sequence hybridizes to a perfectly matched probe. An equation for calculating T<sub>m</sub> and conditions for nucleic acid hybridization is well known and can be found in Sambrook et al., 1989, Molecular Cloning: A Laboratory Manual, 2<sup>nd</sup> ed., vol. 1-3, Cold Spring Harbor Press, Plainview NY; specifically see volume 2, chapter 9.

High stringency conditions for hybridization between polynucleotides of the present invention include wash conditions of 68°C in the presence of about 0.2 x SSC and about 0.1% SDS, for 1 hour.

Alternatively, temperatures of about 65°C, 60°C, or 55°C may be used. SSC concentration may be varied from about 0.2 to 2 x SSC, with SDS being present at about 0.1%. Typically, blocking reagents are used to block non-specific hybridization. Such blocking reagents include, for instance, denatured salmon sperm DNA at about 100-200  $\mu$ g/ml. Useful variations on these conditions will be readily apparent to those skilled in the art. Hybridization, particularly under high stringency conditions, may be suggestive of evolutionary similarity between the nucleotides. Such similarity is strongly indicative of a similar role for the nucleotides and their resultant proteins.

Other parameters, such as temperature, salt concentration, and detergent concentration may be varied to achieve the desired stringency. Denaturants, such as formamide at a concentration of about 35-50% v/v, may also be used under particular circumstances, such as RNA:DNA hybridizations. Appropriate hybridization conditions are routinely determinable by one of ordinary skill in the art.

"Immunologically active" or "immunogenic" describes the potential for a natural, recombinant, or synthetic peptide, epitope, polypeptide, or protein to induce antibody production in appropriate animals, cells, or cell lines.

"Immune response" can refer to conditions associated with inflammation, trauma, immune disorders, or infectious or genetic disease, etc. These conditions can be characterized by expression of various factors, e.g., cytokines, chemokines, and other signaling molecules, which may affect cellular and systemic defense systems.

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An "immunogenic fragment" is a polypeptide or oligopeptide fragment of SPTM which is capable of eliciting an immune response when introduced into a living organism, for example, a mammal. The term "immunogenic fragment" also includes any polypeptide or oligopeptide fragment of SPTM which is useful in any of the antibody production methods disclosed herein or known in the art.

"Insertion" or "addition" refers to a change in either a nucleic or amino acid sequence in which at least one nucleotide or residue, respectively, is added to the sequence.

"Labeling" refers to the covalent or noncovalent joining of a polynucleotide, polypeptide, or antibody with a reporter molecule capable of producing a detectable or measurable signal.

"Microarray" is any arrangement of nucleic acids, amino acids, antibodies, etc., on a substrate. The substrate may be a solid support such as beads, glass, paper, nitrocellulose, nylon, or an appropriate membrane.

"Linkers" are short stretches of nucleotide sequence which may be added to a vector or an sptm to create restriction endonuclease sites to facilitate cloning. "Polylinkers" are engineered to incorporate multiple restriction enzyme sites and to provide for the use of enzymes which leave 5' or 3'

overhangs (e.g., BamHI, EcoRI, and HindIII) and those which provide blunt ends (e.g., EcoRV, SnaBI, and StuI).

"Naturally occurring" refers to an endogenous polynucleotide or polypeptide that may be isolated from viruses or prokaryotic or eukaryotic cells.

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"Nucleic acid sequence" refers to the specific order of nucleotides joined by phosphodiester bonds in a linear, polymeric arrangement. Depending on the number of nucleotides, the nucleic acid sequence can be considered an oligomer, oligonucleotide, or polynucleotide. The nucleic acid can be DNA, RNA, or any nucleic acid analog, such as PNA, may be of genomic or synthetic origin, may be either double-stranded or single-stranded, and can represent either the sense or antisense (complementary) strand.

"Oligomer" refers to a nucleic acid sequence of at least about 6 nucleotides and as many as about 60 nucleotides, preferably about 15 to 40 nucleotides, and most preferably between about 20 and 30 nucleotides, that may be used in hybridization or amplification technologies. Oligomers may be used as, e.g., primers for PCR, and are usually chemically synthesized.

"Operably linked" refers to the situation in which a first nucleic acid sequence is placed in a functional relationship with the second nucleic acid sequence. For instance, a promoter is operably linked to a coding sequence if the promoter affects the transcription or expression of the coding sequence. Generally, operably linked DNA sequences may be in close proximity or contiguous and, where necessary to join two protein coding regions, in the same reading frame.

"Peptide nucleic acid" (PNA) refers to a DNA mimic in which nucleotide bases are attached to a pseudopeptide backbone to increase stability. PNAs, also designated antigene agents, can prevent gene expression by targeting complementary messenger RNA.

The phrases "percent identity" and "% identity", as applied to polynucleotide sequences, refer to the percentage of residue matches between at least two polynucleotide sequences aligned using a standardized algorithm. Such an algorithm may insert, in a standardized and reproducible way, gaps in the sequences being compared in order to optimize alignment between two sequences, and therefore achieve a more meaningful comparison of the two sequences.

Percent identity between polynucleotide sequences may be determined using the default parameters of the CLUSTAL V algorithm as incorporated into the MEGALIGN version 3.12e sequence alignment program. This program is part of the LASERGENE software package, a suite of molecular biological analysis programs (DNASTAR, Madison WI). CLUSTAL V is described in Higgins, D.G. and Sharp, P.M. (1989) CABIOS 5:151-153 and in Higgins, D.G. et al. (1992) CABIOS 8:189-191. For pairwise alignments of polynucleotide sequences, the default parameters are set as follows: Ktuple=2, gap penalty=5, window=4, and "diagonals saved"=4. The "weighted" residue

weight table is selected as the default. Percent identity is reported by CLUSTAL V as the "percent similarity" between aligned polynucleotide sequence pairs.

Alternatively, a suite of commonly used and freely available sequence comparison algorithms is provided by the National Center for Biotechnology Information (NCBI) Basic Local Alignment Search Tool (BLAST) (Altschul, S.F. et al. (1990) J. Mol. Biol. 215:403-410), which is available from several sources, including the NCBI, Bethesda, MD, and on the Internet at http://www.ncbi.nlm.nih.gov/BLAST/. The BLAST software suite includes various sequence analysis programs including "BLASTN," that is used to determine alignment between a known polynucleotide sequence and other sequences on a variety of databases. Also available is a tool called "BLAST 2 Sequences" that is used for direct pairwise comparison of two nucleotide sequences. "BLAST 2 10 Sequences" can be accessed and used interactively at http://www.ncbi.nlm.nih.gov/gorf/bl2/. The "BLAST 2 Sequences" tool can be used for both BLASTN and BLASTP (discussed below). BLAST programs are commonly used with gap and other parameters set to default settings. For example, to compare two nucleotide sequences, one may use BLASTN with the "BLAST 2 Sequences" tool Version 2.0.9 (May-07-1999) set at default parameters. Such default parameters 15 may be, for example:

Matrix: BLOSUM62

Reward for match: 1

Penalty for mismatch: -2

Open Gap: 5 and Extension Gap: 2 penalties

Gap x drop-off: 50

Expect: 10

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Word Size: 11

Filter: on

Percent identity may be measured over the length of an entire defined sequence, for example, as defined by a particular SEQ ID number, or may be measured over a shorter length, for example, over the length of a fragment taken from a larger, defined sequence, for instance, a fragment of at least 20, at least 30, at least 40, at least 50, at least 70, at least 100, or at least 200 contiguous nucleotides. Such lengths are exemplary only, and it is understood that any fragment length supported by the sequences shown herein, in figures or Sequence Listings, may be used to describe a length over which percentage identity may be measured.

Nucleic acid sequences that do not show a high degree of identity may nevertheless encode similar amino acid sequences due to the degeneracy of the genetic code. It is understood that changes in nucleic acid sequence can be made using this degeneracy to produce multiple nucleic acid sequences that all encode substantially the same protein.

The phrases "percent identity" and "% identity", as applied to polypeptide sequences, refer to the percentage of residue matches between at least two polypeptide sequences aligned using a standardized algorithm. Methods of polypeptide sequence alignment are well-known. Some alignment methods take into account conservative amino acid substitutions. Such conservative substitutions, explained in more detail above, generally preserve the hydrophobicity and acidity of the substituted residue, thus preserving the structure (and therefore function) of the folded polypeptide.

Percent identity between polypeptide sequences may be determined using the default parameters of the CLUSTAL V algorithm as incorporated into the MEGALIGN version 3.12e sequence alignment program (described and referenced above). For pairwise alignments of polypeptide sequences using CLUSTAL V, the default parameters are set as follows: Ktuple=1, gap penalty=3, window=5, and "diagonals saved"=5. The PAM250 matrix is selected as the default residue weight table. As with polynucleotide alignments, the percent identity is reported by CLUSTAL V as the "percent similarity" between aligned polypeptide sequence pairs.

Alternatively the NCBI BLAST software suite may be used. For example, for a pairwise comparison of two polypeptide sequences, one may use the "BLAST 2 Sequences" tool Version 2.0.9 (May-07-1999) with BLASTP set at default parameters. Such default parameters may be, for example:

Matrix: BLOSUM62

Open Gap: 11 and Extension Gap: 1 penalty

 $Gap \ x \ drop-off: 50$ 

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Expect: 10
Word Size: 3

Filter: on

Percent identity may be measured over the length of an entire defined polypeptide sequence,
for example, as defined by a particular SEQ ID number, or may be measured over a shorter length,
for example, over the length of a fragment taken from a larger, defined polypeptide sequence, for
instance, a fragment of at least 15, at least 20, at least 30, at least 40, at least 50, at least 70 or at least
150 contiguous residues. Such lengths are exemplary only, and it is understood that any fragment
length supported by the sequences shown herein, in figures or Sequence Listings, may be used to
describe a length over which percentage identity may be measured.

"Post-translational modification" of an SPTM may involve lipidation, glycosylation, phosphorylation, acetylation, racemization, proteolytic cleavage, and other modifications known in the art. These processes may occur synthetically or biochemically. Biochemical modifications will vary by cell type depending on the enzymatic milieu and the SPTM.

"Probe" refers to sptm or fragments thereof, which are used to detect identical, allelic or related nucleic acid sequences. Probes are isolated oligonucleotides or polynucleotides attached to a detectable label or reporter molecule. Typical labels include radioactive isotopes, ligands, chemiluminescent agents, and enzymes. "Primers" are short nucleic acids, usually DNA oligonucleotides, which may be annealed to a target polynucleotide by complementary base-pairing. The primer may then be extended along the target DNA strand by a DNA polymerase enzyme. Primer pairs can be used for amplification (and identification) of a nucleic acid sequence, e.g., by the polymerase chain reaction (PCR).

Probes and primers as used in the present invention typically comprise at least 15 contiguous nucleotides of a known sequence. In order to enhance specificity, longer probes and primers may also be employed, such as probes and primers that comprise at least 20, 30, 40, 50, 60, 70, 80, 90, 100, or at least 150 consecutive nucleotides of the disclosed nucleic acid sequences. Probes and primers may be considerably longer than these examples, and it is understood that any length supported by the specification, including the figures and Sequence Listing, may be used.

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Methods for preparing and using probes and primers are described in the references, for example Sambrook et al., 1989, Molecular Cloning: A Laboratory Manual, 2<sup>nd</sup> ed., vol. 1-3, Cold Spring Harbor Press, Plainview NY; Ausubel et al.,1987, Current Protocols in Molecular Biology, Greene Publ. Assoc. & Wiley-Intersciences, New York NY; Innis et al., 1990, PCR Protocols, A Guide to Methods and Applications, Academic Press, San Diego CA. PCR primer pairs can be derived from a known sequence, for example, by using computer programs intended for that purpose such as Primer (Version 0.5, 1991, Whitehead Institute for Biomedical Research, Cambridge MA).

Oligonucleotides for use as primers are selected using software known in the art for such purpose. For example, OLIGO 4.06 software is useful for the selection of PCR primer pairs of up to 100 nucleotides each, and for the analysis of oligonucleotides and larger polynucleotides of up to 5,000 nucleotides from an input polynucleotide sequence of up to 32 kilobases. Similar primer selection programs have incorporated additional features for expanded capabilities. For example, the PrimOU primer selection program (available to the public from the Genome Center at University of Texas South West Medical Center, Dallas TX) is capable of choosing specific primers from megabase sequences and is thus useful for designing primers on a genome-wide scope. The Primer3 primer selection program (available to the public from the Whitehead Institute/MIT Center for Genome Research, Cambridge MA) allows the user to input a "mispriming library," in which sequences to avoid as primer binding sites are user-specified. Primer3 is useful, in particular, for the selection of oligonucleotides for microarrays. (The source code for the latter two primer selection programs may also be obtained from their respective sources and modified to meet the user's specific needs.) The PrimeGen program (available to the public from the UK Human Genome Mapping Project Resource

Centre, Cambridge UK) designs primers based on multiple sequence alignments, thereby allowing selection of primers that hybridize to either the most conserved or least conserved regions of aligned nucleic acid sequences. Hence, this program is useful for identification of both unique and conserved oligonucleotides and polynucleotide fragments. The oligonucleotides and polynucleotide fragments identified by any of the above selection methods are useful in hybridization technologies, for example, as PCR or sequencing primers, microarray elements, or specific probes to identify fully or partially complementary polynucleotides in a sample of nucleic acids. Methods of oligonucleotide selection are not limited to those described above.

"Purified" refers to molecules, either polynucleotides or polypeptides that are isolated or separated from their natural environment and are at least about 60% free, preferably at least about 75% free, and most preferably at least about 90% free from other compounds with which they are naturally associated.

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A "recombinant nucleic acid" is a sequence that is not naturally occurring or has a sequence that is made by an artificial combination of two or more otherwise separated segments of sequence. This artificial combination is often accomplished by chemical synthesis or, more commonly, by the artificial manipulation of isolated segments of nucleic acids, e.g., by genetic engineering techniques such as those described in Sambrook, <u>supra</u>. The term recombinant includes nucleic acids that have been altered solely by addition, substitution, or deletion of a portion of the nucleic acid. Frequently, a recombinant nucleic acid may include a nucleic acid sequence operably linked to a promoter sequence. Such a recombinant nucleic acid may be part of a vector that is used, for example, to transform a cell.

Alternatively, such recombinant nucleic acids may be part of a viral vector, e.g., based on a vaccinia virus, that could be use to vaccinate a mammal wherein the recombinant nucleic acid is expressed, inducing a protective immunological response in the mammal.

"Regulatory element" refers to a nucleic acid sequence from nontranslated regions of a gene, and includes enhancers, promoters, introns, and 3' untranslated regions, which interact with host proteins to carry out or regulate transcription or translation.

"Reporter" molecules are chemical or biochemical moieties used for labeling a nucleic acid, an amino acid, or an antibody. They include radionuclides; enzymes; fluorescent, chemiluminescent, or chromogenic agents; substrates; cofactors; inhibitors; magnetic particles; and other moieties known in the art.

An "RNA equivalent," in reference to a DNA sequence, is composed of the same linear sequence of nucleotides as the reference DNA sequence with the exception that all occurrences of the nitrogenous base thymine are replaced with uracil, and the sugar backbone is composed of ribose instead of deoxyribose.

"Sample" is used in its broadest sense. Samples may contain nucleic or amino acids, antibodies, or other materials, and may be derived from any source (e.g., bodily fluids including, but not limited to, saliva, blood, and urine; chromosome(s), organelles, or membranes isolated from a cell; genomic DNA, RNA, or cDNA in solution or bound to a substrate; and cleared cells or tissues or blots or imprints from such cells or tissues).

"Specific binding" or "specifically binding" refers to the interaction between a protein or peptide and its agonist, antibody, antagonist, or other binding partner. The interaction is dependent upon the presence of a particular structure of the protein, e.g., the antigenic determinant or epitope, recognized by the binding molecule. For example, if an antibody is specific for epitope "A," the presence of a polypeptide containing epitope A, or the presence of free unlabeled A, in a reaction containing free labeled A and the antibody will reduce the amount of labeled A that binds to the antibody.

"Substitution" refers to the replacement of at least one nucleotide or amino acid by a different nucleotide or amino acid.

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"Substrate" refers to any suitable rigid or semi-rigid support including, e.g., membranes, filters, chips, slides, wafers, fibers, magnetic or nonmagnetic beads, gels, tubing, plates, polymers, microparticles or capillaries. The substrate can have a variety of surface forms, such as wells, trenches, pins, channels and pores, to which polynucleotides or polypeptides are bound.

A "transcript image" refers to the collective pattern of gene expression by a particular tissue or cell type under given conditions at a given time.

"Transformation" refers to a process by which exogenous DNA enters a recipient cell.

Transformation may occur under natural or artificial conditions using various methods well known in the art. Transformation may rely on any known method for the insertion of foreign nucleic acid sequences into a prokaryotic or eukaryotic host cell. The method is selected based on the host cell being transformed.

"Transformants" include stably transformed cells in which the inserted DNA is capable of replication either as an autonomously replicating plasmid or as part of the host chromosome, as well as cells which transiently express inserted DNA or RNA.

A "transgenic organism," as used herein, is any organism, including but not limited to animals and plants, in which one or more of the cells of the organism contains heterologous nucleic acid introduced by way of human intervention, such as by transgenic techniques well known in the art. The nucleic acid is introduced into the cell, directly or indirectly by introduction into a precursor of the cell, by way of deliberate genetic manipulation, such as by microinjection or by infection with a recombinant virus. The term genetic manipulation does not include classical cross-breeding, or in vitro fertilization, but rather is directed to the introduction of a recombinant DNA molecule. The transgenic

organisms contemplated in accordance with the present invention include bacteria, cyanobacteria, fungi, and plants and animals. The isolated DNA of the present invention can be introduced into the host by methods known in the art, for example infection, transfection, transformation or transconjugation. Techniques for transferring the DNA of the present invention into such organisms are widely known and provided in references such as Sambrook et al. (1989), supra.

A "variant" of a particular nucleic acid sequence is defined as a nucleic acid sequence having at least 25% sequence identity to the particular nucleic acid sequence over a certain length of one of the nucleic acid sequences using BLASTN with the "BLAST 2 Sequences" tool Version 2.0.9 (May-07-1999) set at default parameters. Such a pair of nucleic acids may show, for example, at least 30%, at least 50%, at least 60%, at least 70%, at least 80%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% or greater sequence identity over a certain defined length. The variant may result in "conservative" amino acid changes which do not affect structural and/or chemical properties. A variant may be described as, for example, an "allelic" (as defined above), "splice," "species," or "polymorphic" variant. A splice variant may have significant identity to a reference molecule, but will generally have a greater or lesser number of polynucleotides due to alternate splicing of exons during mRNA processing. The corresponding polypeptide may possess additional functional domains or lack domains that are present in the reference molecule. Species variants are polynucleotide sequences that vary from one species to another. The resulting polypeptides generally will have significant amino acid identity relative to each other. A polymorphic variant is a variation in the polynucleotide sequence of a particular gene between individuals of a given species. Polymorphic variants also may encompass "single nucleotide polymorphisms" (SNPs) in which the polynucleotide sequence varies by one base. The presence of SNPs may be indicative of, for example, a certain population, a disease state, or a propensity for a disease state.

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In an alternative, variants of the polynucleotides of the present invention may be generated through recombinant methods. One possible method is a DNA shuffling technique such as MOLECULARBREEDING (Maxygen Inc., Santa Clara CA; described in U.S. Patent Number 5,837,458; Chang, C.-C. et al. (1999) Nat. Biotechnol. 17:793-797; Christians, F.C. et al. (1999) Nat. Biotechnol. 17:259-264; and Crameri, A. et al. (1996) Nat. Biotechnol. 14:315-319) to alter or improve the biological properties of SPTM, such as its biological or enzymatic activity or its ability to bind to other molecules or compounds. DNA shuffling is a process by which a library of gene variants is produced using PCR-mediated recombination of gene fragments. The library is then subjected to selection or screening procedures that identify those gene variants with the desired properties. These preferred variants may then be pooled and further subjected to recursive rounds of DNA shuffling and selection/screening. Thus, genetic diversity is created through "artificial" breeding and rapid molecular

evolution. For example, fragments of a single gene containing random point mutations may be recombined, screened, and then reshuffled until the desired properties are optimized. Alternatively, fragments of a given gene may be recombined with fragments of homologous genes in the same gene family, either from the same or different species, thereby maximizing the genetic diversity of multiple naturally occurring genes in a directed and controllable manner.

A "variant" of a particular polypeptide sequence is defined as a polypeptide sequence having at least 40% sequence identity to the particular polypeptide sequence over a certain length of one of the polypeptide sequences using BLASTP with the "BLAST 2 Sequences" tool Version 2.0.9 (May-07-1999) set at default parameters. Such a pair of polypeptides may show, for example, at least 50%, at least 60%, at least 70%, at least 80%, at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% or greater sequence identity over a certain defined length of one of the polypeptides.

#### THE INVENTION

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In a particular embodiment, cDNA sequences derived from human tissues and cell lines were aligned based on nucleotide sequence identity and assembled into "consensus" or "template" sequences which are designated by the template identification numbers (template IDs) in column 2 of Table 2. The sequence identification numbers (SEQ ID NO:s) corresponding to the template IDs are shown in column 1. Segments of the template sequences are defined by the "start" and "stop" nucleotide positions listed in columns 3 and 4. These segments, when translated in the reading frames indicated in column 5, have similarity to signal peptide (SP) or transmembrane (TM) domain consensus sequences, as indicated in column 6.

The invention incorporates the nucleic acid sequences of these templates as disclosed in the Sequence Listing and the use of these sequences in the diagnosis and treatment of disease states characterized by defects in cell signaling. The invention further utilizes these sequences in hybridization and amplification technologies, and in particular, in technologies which assess gene expression patterns correlated with specific cells or tissues and their responses in vivo or in vitro to pharmaceutical agents, toxins, and other treatments. In this manner, the sequences of the present invention are used to develop a transcript image for a particular cell or tissue.

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#### **Derivation of Nucleic Acid Sequences**

cDNA was isolated from libraries constructed using RNA derived from normal and diseased human tissues and cell lines. The human tissues and cell lines used for cDNA library construction were selected from a broad range of sources to provide a diverse population of cDNAs representative of gene transcription throughout the human body. Descriptions of the human tissues and cell lines

used for cDNA library construction are provided in the LIFESEQ database (Incyte Genomics, Inc. (Incyte), Palo Alto CA). Human tissues were broadly selected from, for example, cardiovascular, dermatologic, endocrine, gastrointestinal, hematopoietic/immune system, musculoskeletal, neural, reproductive, and urologic sources.

Cell lines used for cDNA library construction were derived from, for example, leukemic cells, teratocarcinomas, neuroepitheliomas, cervical carcinoma, lung fibroblasts, and endothelial cells. Such cell lines include, for example, THP-1, Jurkat, HUVEC, hNT2, WI38, HeLa, and other cell lines commonly used and available from public depositories (American Type Culture Collection, Manassas VA). Prior to mRNA isolation, cell lines were untreated, treated with a pharmaceutical agent such as 5'-aza-2'-deoxycytidine, treated with an activating agent such as lipopolysaccharide in the case of leukocytic cell lines, or, in the case of endothelial cell lines, subjected to shear stress.

#### Sequencing of the cDNAs

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Methods for DNA sequencing are well known in the art. Conventional enzymatic methods employ the Klenow fragment of DNA polymerase I, SEQUENASE DNA polymerase (U.S. Biochemical Corporation, Cleveland OH), Taq polymerase (Applied Biosystems, Foster City CA), thermostable T7 polymerase (Amersham Pharmacia Biotech, Inc. (Amersham Pharmacia Biotech), Piscataway NI), or combinations of polymerases and proofreading exonucleases such as those found in the ELONGASE amplification system (Life Technologies Inc. (Life Technologies), Gaithersburg MD), to extend the nucleic acid sequence from an oligonucleotide primer annealed to the DNA template of interest. Methods have been developed for the use of both single-stranded and doublestranded templates. Chain termination reaction products may be electrophoresed on ureapolyacrylamide gels and detected either by autoradiography (for radioisotope-labeled nucleotides) or by fluorescence (for fluorophore-labeled nucleotides). Automated methods for mechanized reaction preparation, sequencing, and analysis using fluorescence detection methods have been developed. Machines used to prepare cDNAs for sequencing can include the MICROLAB 2200 liquid transfer system (Hamilton Company (Hamilton), Reno NV), Peltier thermal cycler (PTC200; MJ Research, Inc. (MJ Research), Watertown MA), and ABI CATALYST 800 thermal cycler (Applied Biosystems). Sequencing can be carried out using, for example, the ABI 373 or 377 (Applied Biosystems) or MEGABACE 1000 (Molecular Dynamics, Inc. (Molecular Dynamics), Sunnyvale CA) DNA sequencing systems, or other automated and manual sequencing systems well known in the art.

The nucleotide sequences of the Sequence Listing have been prepared by current, state-ofthe-art, automated methods and, as such, may contain occasional sequencing errors or unidentified nucleotides. Such unidentified nucleotides are designated by an N. These infrequent unidentified

bases do not represent a hindrance to practicing the invention for those skilled in the art. Several methods employing standard recombinant techniques may be used to correct errors and complete the missing sequence information. (See, e.g., those described in Ausubel, F.M. et al. (1997) Short Protocols in Molecular Biology, John Wiley & Sons, New York NY; and Sambrook, J. et al. (1989) Molecular Cloning, A Laboratory Manual, Cold Spring Harbor Press, Plainview NY.)

#### Assembly of cDNA Sequences

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Human polynucleotide sequences may be assembled using programs or algorithms well known in the art. Sequences to be assembled are related, wholly or in part, and may be derived from a single or many different transcripts. Assembly of the sequences can be performed using such programs as PHRAP (Phils Revised Assembly Program) and the GELVIEW fragment assembly system (GCG), or other methods known in the art.

Alternatively, cDNA sequences are used as "component" sequences that are assembled into "template" or "consensus" sequences as follows. Sequence chromatograms are processed, verified, and quality scores are obtained using PHRED. Raw sequences are edited using an editing pathway known as Block 1 (See, e.g., the LIFESEQ Assembled User Guide, Incyte Genomics, Palo Alto, CA). A series of BLAST comparisons is performed and low-information segments and repetitive elements (e.g., dinucleotide repeats, Alu repeats, etc.) are replaced by "n's", or masked, to prevent spurious matches. Mitochondrial and ribosomal RNA sequences are also removed. The processed sequences are then loaded into a relational database management system (RDMS) which assigns edited sequences to existing templates, if available. When additional sequences are added into the RDMS, a process is initiated which modifies existing templates or creates new templates from works in progress (i.e., nonfinal assembled sequences) containing queued sequences or the sequences themselves. After the new sequences have been assigned to templates, the templates can be merged into bins. If multiple templates exist in one bin, the bin can be split and the templates reannotated.

Once gene bins have been generated based upon sequence alignments, bins are "clone joined" based upon clone information. Clone joining occurs when the 5' sequence of one clone is present in one bin and the 3' sequence from the same clone is present in a different bin, indicating that the two bins should be merged into a single bin. Only bins which share at least two different clones are merged.

A resultant template sequence may contain either a partial or a full length open reading frame, or all or part of a genetic regulatory element. This variation is due in part to the fact that the full length cDNAs of many genes are several hundred, and sometimes several thousand, bases in length. With current technology, cDNAs comprising the coding regions of large genes cannot be cloned because of vector limitations, incomplete reverse transcription of the mRNA, or incomplete "second

strand" synthesis. Template sequences may be extended to include additional contiguous sequences derived from the parent RNA transcript using a variety of methods known to those of skill in the art. Extension may thus be used to achieve the full length coding sequence of a gene.

#### 5 Analysis of the cDNA Sequences

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The cDNA sequences are analyzed using a variety of programs and algorithms which are well known in the art. (See, e.g., Ausubel, 1997, <u>supra</u>, Chapter 7.7; Meyers, R.A. (Ed.) (1995) Molecular Biology and Biotechnology, Wiley VCH, New York NY, pp. 856-853; and Table 6.) These analyses comprise both reading frame determinations, e.g., based on triplet codon periodicity for particular organisms (Fickett, J.W. (1982) Nucleic Acids Res. 10:5303-5318); analyses of potential start and stop codons; and homology searches.

Computer programs known to those of skill in the art for performing computer-assisted searches for amino acid and nucleic acid sequence similarity, include, for example, Basic Local Alignment Search Tool (BLAST; Altschul, S.F. (1993) J. Mol. Evol. 36:290-300; Altschul, S.F. et al. (1990) J. Mol. Biol. 215:403-410). BLAST is especially useful in determining exact matches and comparing two sequence fragments of arbitrary but equal lengths, whose alignment is locally maximal and for which the alignment score meets or exceeds a threshold or cutoff score set by the user (Karlin, S. et al. (1988) Proc. Natl. Acad. Sci. USA 85:841-845). Using an appropriate search tool (e.g., BLAST or HMM), GenBank, SwissProt, BLOCKS, PFAM and other databases may be searched for sequences containing regions of homology to a query sptm or SPTM of the present invention.

Other approaches to the identification, assembly, storage, and display of nucleotide and polypeptide sequences are provided in "Relational Database for Storing Biomolecule Information," U.S.S.N. 08/947,845, filed October 9, 1997; "Project-Based Full-Length Biomolecular Sequence Database," U.S. Patent Number 5,953,727; and "Relational Database and System for Storing Information Relating to Biomolecular Sequences," U.S.S.N. 09/034,807, filed March 4, 1998, all of which are incorporated by reference herein in their entirety.

Protein hierarchies can be assigned to the putative encoded polypeptide based on, e.g., motif, BLAST, or biological analysis. Methods for assigning these hierarchies are described, for example, in "Database System Employing Protein Function Hierarchies for Viewing Biomolecular Sequence Data," U.S. Patent Number 6,023,659, incorporated herein by reference.

#### **Human Secretory Sequences**

The sptm of the present invention may be used for a variety of diagnostic and therapeutic purposes. For example, an sptm may be used to diagnose a particular condition, disease, or disorder

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associated with cell signaling. Such conditions, diseases, and disorders include, but are not limited to, a cell proliferative disorder such as actinic keratosis, arteriosclerosis, atherosclerosis, bursitis, cirrhosis, hepatitis, mixed connective tissue disease (MCTD), myelofibrosis, paroxysmal nocturnal hemoglobinuria, polycythemia vera, psoriasis, primary thrombocythemia, and cancers including adenocarcinoma, leukemia, lymphoma, melanoma, myeloma, sarcoma, teratocarcinoma, and, in particular, a cancer of the adrenal gland, bladder, bone, bone marrow, brain, breast, cervix, gall bladder, ganglia, gastrointestinal tract, heart, kidney, liver, lung, muscle, ovary, pancreas, parathyroid, penis, prostate, salivary glands, skin, spleen, testis, thymus, thyroid, and uterus; an immune system disorder such as such as inflammation, actinic keratosis, acquired immunodeficiency syndrome (AIDS), Addison's disease, adult respiratory distress syndrome, allergies, ankylosing spondylitis, amyloidosis, anemia, arteriosclerosis, asthma, atherosclerosis, autoimmune hemolytic anemia, autoimmune thyroiditis, bronchitis, bursitis, cholecystitis, cirrhosis, contact dermatitis, Crohn's disease, atopic dermatitis, dermatomyositis, diabetes mellitus, emphysema, erythroblastosis fetalis, erythema nodosum, atrophic gastritis, glomerulonephritis, Goodpasture's syndrome, gout, Graves' disease, Hashimoto's thyroiditis, paroxysmal nocturnal hemoglobinuria, hepatitis, hypereosinophilia, irritable bowel syndrome, episodic lymphopenia with lymphocytotoxins, mixed connective tissue disease (MCTD), multiple sclerosis, myasthenia gravis, myocardial or pericardial inflammation, myelofibrosis, osteoarthritis, osteoporosis, pancreatitis, polycythemia vera, polymyositis, psoriasis, Reiter's syndrome, rheumatoid arthritis, scleroderma, Sjögren's syndrome, systemic anaphylaxis, systemic lupus erythematosus, systemic sclerosis, primary thrombocythemia, thrombocytopenic purpura, ulcerative colitis, uveitis, Werner syndrome, complications of cancer, hemodialysis, and extracorporeal circulation, trauma, and hematopoietic cancer including lymphoma, leukemia, and myeloma; and a neurological disorder such as epilepsy, ischemic cerebrovascular disease, stroke, cerebral neoplasms, Alzheimer's disease, Pick's disease, Huntington's disease, dementia, Parkinson's disease and other extrapyramidal disorders, amyotrophic lateral sclerosis and other motor neuron disorders, progressive neural muscular atrophy, retinitis pigmentosa, hereditary ataxias, multiple sclerosis and other demyelinating diseases, bacterial and viral meningitis, brain abscess, subdural empyema, epidural abscess, suppurative intracranial thrombophlebitis, myelitis and radiculitis, viral central nervous system disease, prion diseases including kuru, Creutzfeldt-Jakob disease, and Gerstmann-Straussler-Scheinker syndrome, fatal familial insomnia, nutritional and metabolic diseases of the nervous system, neurofibromatosis, tuberous sclerosis, cerebelloretinal hemangioblastomatosis, encephalotrigeminal syndrome, mental retardation and other developmental disorder of the central nervous system, cerebral palsy, a neuroskeletal disorder, an autonomic nervous system disorder, a cranial nerve disorder, a spinal cord disease, muscular dystrophy and other neuromuscular disorder, a peripheral nervous system disorder, dermatomyositis and polymyositis, inherited, metabolic, endocrine, and toxic

myopathy, myasthenia gravis, periodic paralysis, a mental disorder including mood, anxiety, and schizophrenic disorder, seasonal affective disorder (SAD), akathesia, amnesia, catatonia, diabetic neuropathy, tardive dyskinesia, dystonias, paranoid psychoses, postherpetic neuralgia, and Tourette's disorder. The sptm can be used to detect the presence of, or to quantify the amount of, an sptm-related polynucleotide in a sample. This information is then compared to information obtained from appropriate reference samples, and a diagnosis is established. Alternatively, a polynucleotide complementary to a given sptm can inhibit or inactivate a therapeutically relevant gene related to the sptm.

#### 10 Analysis of sptm Expression Patterns

The expression of sptm may be routinely assessed by hybridization-based methods to determine, for example, the tissue-specificity, disease-specificity, or developmental stage-specificity of sptm expression. For example, the level of expression of sptm may be compared among different cell types or tissues, among diseased and normal cell types or tissues, among cell types or tissues at different developmental stages, or among cell types or tissues undergoing various treatments. This type of analysis is useful, for example, to assess the relative levels of sptm expression in fully or partially differentiated cells or tissues, to determine if changes in sptm expression levels are correlated with the development or progression of specific disease states, and to assess the response of a cell or tissue to a specific therapy, for example, in pharmacological or toxicological studies. Methods for the analysis of sptm expression are based on hybridization and amplification technologies and include membrane-based procedures such as northern blot analysis, high-throughput procedures that utilize, for example, microarrays, and PCR-based procedures.

#### Hybridization and Genetic Analysis

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The sptm, their fragments, or complementary sequences, may be used to identify the presence of and/or to determine the degree of similarity between two (or more) nucleic acid sequences. The sptm may be hybridized to naturally occurring or recombinant nucleic acid sequences under appropriately selected temperatures and salt concentrations. Hybridization with a probe based on the nucleic acid sequence of at least one of the sptm allows for the detection of nucleic acid sequences, including genomic sequences, which are identical or related to the sptm of the Sequence Listing. Probes may be selected from non-conserved or unique regions of at least one of the polynucleotides of SEQ ID NO:1-567 and tested for their ability to identify or amplify the target nucleic acid sequence using standard protocols.

Polynucleotide sequences that are capable of hybridizing, in particular, to those shown in SEQ ID NO:1-567 and fragments thereof, can be identified using various conditions of stringency. (See,

e.g., Wahl, G.M. and S.L. Berger (1987) Methods Enzymol. 152:399-407; Kimmel, A.R. (1987) Methods Enzymol. 152:507-511.) Hybridization conditions are discussed in "Definitions."

A probe for use in Southern or northern hybridization may be derived from a fragment of an sptm sequence, or its complement, that is up to several hundred nucleotides in length and is either single-stranded or double-stranded. Such probes may be hybridized in solution to biological materials such as plasmids, bacterial, yeast, or human artificial chromosomes, cleared or sectioned tissues, or to artificial substrates containing sptm. Microarrays are particularly suitable for identifying the presence of and detecting the level of expression for multiple genes of interest by examining gene expression correlated with, e.g., various stages of development, treatment with a drug or compound, or disease progression. An array analogous to a dot or slot blot may be used to arrange and link polynucleotides to the surface of a substrate using one or more of the following: mechanical (vacuum), chemical, thermal, or UV bonding procedures. Such an array may contain any number of sptm and may be produced by hand or by using available devices, materials, and machines.

Microarrays may be prepared, used, and analyzed using methods known in the art. (See, e.g., Brennan, T.M. et al. (1995) U.S. Patent No. 5,474,796; Schena, M. et al. (1996) Proc. Natl. Acad. Sci. USA 93:10614-10619; Baldeschweiler et al. (1995) PCT application WO95/251116; Shalon, D. et al. (1995) PCT application WO95/35505; Heller, R.A. et al. (1997) Proc. Natl. Acad. Sci. USA 94:2150-2155; and Heller, M.J. et al. (1997) U.S. Patent No. 5,605,662.)

Probes may be labeled by either PCR or enzymatic techniques using a variety of commercially available reporter molecules. For example, commercial kits are available for radioactive and chemiluminescent labeling (Amersham Pharmacia Biotech) and for alkaline phosphatase labeling (Life Technologies). Alternatively, sptm may be cloned into commercially available vectors for the production of RNA probes. Such probes may be transcribed in the presence of at least one labeled nucleotide (e.g., <sup>32</sup>P-ATP, Amersham Pharmacia Biotech).

Additionally the polynucleotides of SEQ ID NO:1-567 or suitable fragments thereof can be used to isolate full length cDNA sequences utilizing hybridization and/or amplification procedures well known in the art, e.g., cDNA library screening, PCR amplification, etc. The molecular cloning of such full length cDNA sequences may employ the method of cDNA library screening with probes using the hybridization, stringency, washing, and probing strategies described above and in Ausubel, <u>supra</u>, Chapters 3, 5, and 6. These procedures may also be employed with genomic libraries to isolate genomic sequences of sptm in order to analyze, e.g., regulatory elements.

#### Genetic Mapping

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Gene identification and mapping are important in the investigation and treatment of almost all conditions, diseases, and disorders. Cancer, cardiovascular disease, Alzheimer's disease, arthritis,

diabetes, and mental illnesses are of particular interest. Each of these conditions is more complex than the single gene defects of sickle cell anemia or cystic fibrosis, with select groups of genes being predictive of predisposition for a particular condition, disease, or disorder. For example, cardiovascular disease may result from malfunctioning receptor molecules that fail to clear cholesterol from the bloodstream, and diabetes may result when a particular individual's immune system is activated by an infection and attacks the insulin-producing cells of the pancreas. In some studies, Alzheimer's disease has been linked to a gene on chromosome 21; other studies predict a different gene and location. Mapping of disease genes is a complex and reiterative process and generally proceeds from genetic linkage analysis to physical mapping.

As a condition is noted among members of a family, a genetic linkage map traces parts of chromosomes that are inherited in the same pattern as the condition. Statistics link the inheritance of particular conditions to particular regions of chromosomes, as defined by RFLP or other markers. (See, for example, Lander, E. S. and Botstein, D. (1986) Proc. Natl. Acad. Sci. USA 83:7353-7357.) Occasionally, genetic markers and their locations are known from previous studies. More often, however, the markers are simply stretches of DNA that differ among individuals. Examples of genetic linkage maps can be found in various scientific journals or at the Online Mendelian Inheritance in Man (OMIM) World Wide Web site.

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In another embodiment of the invention, sptm sequences may be used to generate hybridization probes useful in chromosomal mapping of naturally occurring genomic sequences. Either coding or noncoding sequences of sptm may be used, and in some instances, noncoding sequences may be preferable over coding sequences. For example, conservation of an sptm coding sequence among members of a multi-gene family may potentially cause undesired cross hybridization during chromosomal mapping. The sequences may be mapped to a particular chromosome, to a specific region of a chromosome, or to artificial chromosome constructions, e.g., human artificial chromosomes (HACs), yeast artificial chromosomes (YACs), bacterial artificial chromosomes (BACs), bacterial P1 constructions, or single chromosome cDNA libraries. (See, e.g., Harrington, J.J. et al. (1997) Nat. Genet. 15:345-355; Price, C.M. (1993) Blood Rev. 7:127-134; and Trask, B.J. (1991) Trends Genet. 7:149-154.)

Fluorescent <u>in situ</u> hybridization (FISH) may be correlated with other physical chromosome mapping techniques and genetic map data. (See, e.g., Meyers, <u>supra</u>, pp. 965-968.) Correlation between the location of sptm on a physical chromosomal map and a specific disorder, or a predisposition to a specific disorder, may help define the region of DNA associated with that disorder. The sptm sequences may also be used to detect polymorphisms that are genetically linked to the inheritance of a particular condition, disease, or disorder.

In situ hybridization of chromosomal preparations and genetic mapping techniques, such as

linkage analysis using established chromosomal markers, may be used for extending existing genetic maps. Often the placement of a gene on the chromosome of another mammalian species, such as mouse, may reveal associated markers even if the number or arm of the corresponding human chromosome is not known. These new marker sequences can be mapped to human chromosomes and may provide valuable information to investigators searching for disease genes using positional cloning or other gene discovery techniques. Once a disease or syndrome has been crudely correlated by genetic linkage with a particular genomic region, e.g., ataxia-telangiectasia to 11q22-23, any sequences mapping to that area may represent associated or regulatory genes for further investigation. (See, e.g., Gatti, R.A. et al. (1988) Nature 336:577-580.) The nucleotide sequences of the subject invention may also be used to detect differences in chromosomal architecture due to translocation, inversion, etc., among normal, carrier, or affected individuals.

Once a disease-associated gene is mapped to a chromosomal region, the gene is cloned in order to identify mutations or other alterations (e.g., translocations or inversions) that may be correlated with disease. This process includes a physical map of the chromosomal region containing the disease-gene of interest along with associated markers. A physical map is necessary for determining the nucleotide sequence of and order of marker genes on a particular chromosomal region. Physical mapping techniques are well known in the art and involve the generation of overlapping sets of cloned DNA fragments from a particular organelle, chromosome, or genome. These clones are analyzed to reconstruct and catalog their order. Once the position of a marker is determined, the DNA from that region is obtained by consulting the catalog and selecting clones from that region. The gene of interest is located through positional cloning techniques using hybridization or similar methods.

#### Diagnostic Uses

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In various embodiments, embodiments of sptm described herein can be configured to be used to design probes useful in diagnostic assays known to those skilled in the art. Such assays can be configured to be used to diagnose, detect, confirm or quantitate conditions, disorders, or diseases associated with abnormal levels of sptm expression. Labeled probes developed from sptm sequences are added to a sample under hybridizing conditions of desired stringency. In some instances, sptm, or fragments or oligonucleotides derived from sptm, may be used as primers in amplification steps prior to hybridization. The amount of hybridization complex formed is quantified and compared with standards for a selected cell or tissue type. Indication of the presence of the condition, disorder, or disease can be determined by variation of the amount of sptm expression from the assay standard. The amount of variation indicative of the condition can be above or below the standard, can be selected by the medical practioner, can be determined from known patient populations and/or amounts known in the

medical arts and/or associated standards organizations or regulations (e.g. CLIA). Examples of qualitative or quantitative diagnostic assays or methods may include but are not limited to northern, dot blot, or other membrane or dip-stick based technologies or multiple-sample format technologies such as PCR, enzyme-linked immunosorbent assay (ELISA)-like, pin, chip-based assays and the like.

The probes described above may also be used to monitor the progress of conditions, disorders, or diseases associated with abnormal levels of sptm expression, or to evaluate the efficacy of a particular therapeutic treatment. The candidate probe may be identified from the sptm that are specific to a given human tissue and have not been observed in GenBank or other genome databases. Such a probe may be used in animal studies, preclinical tests, clinical trials, or in monitoring the treatment of an individual patient. In a typical process, standard expression is established by methods well known in the art for use as a basis of comparison, samples from patients affected by the disorder or disease are combined with the probe to evaluate any deviation from the standard profile, and a therapeutic agent is administered and effects are monitored to generate a treatment profile. Efficacy is evaluated by determining whether the expression progresses toward or returns to the standard normal pattern. Treatment profiles may be generated over a period of several days or several months. Statistical methods well known to those skilled in the art may be use to determine the significance of such therapeutic agents.

The polynucleotides are also useful for identifying individuals from minute biological samples, for example, by matching the RFLP pattern of a sample's DNA to that of an individual's DNA. The polynucleotides of the present invention can also be used to determine the actual base-by-base DNA sequence of selected portions of an individual's genome. These sequences can be used to prepare PCR primers for amplifying and isolating such selected DNA, which can then be sequenced. Using this technique, an individual can be identified through a unique set of DNA sequences. Once a unique ID database is established for an individual, positive identification of that individual can be made from extremely small tissue samples.

In a particular aspect, oligonucleotide primers derived from the sptm of the invention may be used to detect single nucleotide polymorphisms (SNPs). SNPs are substitutions, insertions and deletions that are a frequent cause of inherited or acquired genetic disease in humans. Methods of SNP detection include, but are not limited to, single-stranded conformation polymorphism (SSCP) and fluorescent SSCP (fSSCP) methods. In SSCP, oligonucleotide primers derived from sptm are used to amplify DNA using the polymerase chain reaction (PCR). The DNA may be derived, for example, from diseased or normal tissue, biopsy samples, bodily fluids, and the like. SNPs in the DNA cause differences in the secondary and tertiary structures of PCR products in single-stranded form, and these differences are detectable using gel electrophoresis in non-denaturing gels. In fSCCP, the oligonucleotide primers are fluorescently labeled, which allows detection of the amplimers in high-

throughput equipment such as DNA sequencing machines. Additionally, sequence database analysis methods, termed in silico SNP (isSNP), are capable of identifying polymorphisms by comparing the sequences of individual overlapping DNA fragments which assemble into a common consensus sequence. These computer-based methods filter out sequence variations due to laboratory preparation of DNA and sequencing errors using statistical models and automated analyses of DNA sequence chromatograms. In the alternative, SNPs may be detected and characterized by mass spectrometry using, for example, the high throughput MASSARRAY system (Sequenom, Inc., San Diego CA).

DNA-based identification techniques can be used in forensic technology. DNA sequences taken from very small biological samples such as tissues, e.g., hair or skin, or body fluids, e.g., blood, saliva, semen, etc., can be amplified using, e.g., PCR, to identify individuals. (See, e.g., Erlich, H. (1992) PCR Technology, Freeman and Co., New York, NY). Similarly, polynucleotides of the present invention can be used as polymorphic markers.

There is also a need for reagents capable of identifying the source of a particular tissue. Appropriate reagents can comprise, for example, DNA probes or primers prepared from the sequences of the present invention that are specific for particular tissues. Panels of such reagents can identify tissue by species and/or by organ type. In a similar fashion, these reagents can be used to screen tissue cultures for contamination.

The polynucleotides of the present invention can also be used as molecular weight markers on nucleic acid gels or Southern blots, as diagnostic probes for the presence of a specific mRNA in a particular cell type, in the creation of subtracted cDNA libraries which aid in the discovery of novel polynucleotides, in selection and synthesis of oligomers for attachment to an array or other support, and as an antigen to elicit an immune response.

#### Disease Model Systems Using sptm

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The polynucleotides encoding SPTM or their mammalian homologs may be "knocked out" in an animal model system using homologous recombination in embryonic stem (ES) cells. Such techniques are well known in the art and are useful for the generation of animal models of human disease. (See, e.g., U.S. Patent Number 5,175,383 and U.S. Patent Number 5,767,337.) For example, mouse ES cells, such as the mouse 129/SvJ cell line, are derived from the early mouse embryo and grown in culture. The ES cells are transformed with a vector containing the gene of interest disrupted by a marker gene, e.g., the neomycin phosphotransferase gene (neo; Capecchi, M.R. (1989) Science 244:1288-1292). The vector integrates into the corresponding region of the host genome by homologous recombination. Alternatively, homologous recombination takes place using the Cre-loxP system to knockout a gene of interest in a tissue- or developmental stage-specific manner (Marth, J.D. (1996) Clin. Invest. 97:1999-2002; Wagner, K.U. et al. (1997) Nucleic Acids Res. 25:4323-4330).

Transformed ES cells are identified and microinjected into mouse cell blastocysts such as those from the C57BL/6 mouse strain. The blastocysts are surgically transferred to pseudopregnant dams, and the resulting chimeric progeny are genotyped and bred to produce heterozygous or homozygous strains. Transgenic animals thus generated may be tested with potential therapeutic or toxic agents.

The polynucleotides encoding SPTM may also be manipulated <u>in vitro</u> in ES cells derived from human blastocysts. Human ES cells have the potential to differentiate into at least eight separate cell lineages including endoderm, mesoderm, and ectodermal cell types. These cell lineages differentiate into, for example, neural cells, hematopoietic lineages, and cardiomyocytes (Thomson, J.A. et al. (1998) Science 282:1145-1147).

The polynucleotides encoding SPTM of the invention can also be used to create "knockin" humanized animals (pigs) or transgenic animals (mice or rats) to model human disease. With knockin technology, a region of sptm is injected into animal ES cells, and the injected sequence integrates into the animal cell genome. Transformed cells are injected into blastulae, and the blastulae are implanted as described above. Transgenic progeny or inbred lines are studied and treated with potential pharmaceutical agents to obtain information on treatment of a human disease. Alternatively, a mammal inbred to overexpress sptm, resulting, e.g., in the secretion of SPTM in its milk, may also serve as a convenient source of that protein (Janne, J. et al. (1998) Biotechnol. Annu. Rev. 4:55-74).

## Screening Assays

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SPTM encoded by polynucleotides of the present invention may be used to screen for molecules that bind to or are bound by the encoded polypeptides. The binding of the polypeptide and the molecule may activate (agonist), increase, inhibit (antagonist), or decrease activity of the polypeptide or the bound molecule. Examples of such molecules include antibodies, oligonucleotides, proteins (e.g., receptors), or small molecules.

Preferably, the molecule is closely related to the natural ligand of the polypeptide, e.g., a ligand or fragment thereof, a natural substrate, or a structural or functional mimetic. (See, Coligan et al., (1991) Current Protocols in Immunology 1(2): Chapter 5.) Similarly, the molecule can be closely related to the natural receptor to which the polypeptide binds, or to at least a fragment of the receptor, e.g., the active site. In either case, the molecule can be rationally designed using known techniques. Preferably, the screening for these molecules involves producing appropriate cells which express the polypeptide, either as a secreted protein or on the cell membrane. Preferred cells include cells from mammals, yeast, Drosophila, or E. coli. Cells expressing the polypeptide or cell membrane fractions which contain the expressed polypeptide are then contacted with a test compound and binding, stimulation, or inhibition of activity of either the polypeptide or the molecule is analyzed.

An assay may simply test binding of a candidate compound to the polypeptide, wherein binding

is detected by a fluorophore, radioisotope, enzyme conjugate, or other detectable label. Alternatively, the assay may assess binding in the presence of a labeled competitor.

Additionally, the assay can be carried out using cell-free preparations, polypeptide/molecule affixed to a solid support, chemical libraries, or natural product mixtures. The assay may also simply comprise the steps of mixing a candidate compound with a solution containing a polypeptide, measuring polypeptide/molecule activity or binding, and comparing the polypeptide/molecule activity or binding to a standard.

Preferably, an ELISA assay using, e.g., a monoclonal or polyclonal antibody, can measure polypeptide level in a sample. The antibody can measure polypeptide level by either binding, directly or indirectly, to the polypeptide or by competing with the polypeptide for a substrate.

All of the above assays can be used in a diagnostic or prognostic context. The molecules discovered using these assays can be used to treat disease or to bring about a particular result in a patient (e.g., blood vessel growth) by activating or inhibiting the polypeptide/molecule. Moreover, the assays can discover agents which may inhibit or enhance the production of the polypeptide from suitably manipulated cells or tissues.

#### Transcript Imaging and Toxicological Testing

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Another embodiment relates to the use of sptm to develop a transcript image of a tissue or cell type. A transcript image represents the global pattern of gene expression by a particular tissue or cell type. Global gene expression patterns are analyzed by quantifying the number of expressed genes and their relative abundance under given conditions and at a given time. (See Seilhamer et al., "Comparative Gene Transcript Analysis," U.S. Patent Number 5,840,484, expressly incorporated by reference herein.) Thus a transcript image may be generated by hybridizing the polynucleotides of the present invention or their complements to the totality of transcripts or reverse transcripts of a particular tissue or cell type. In an embodiment, the hybridization takes place in high-throughput format, wherein the polynucleotides of the present invention or their complements comprise a subset of a plurality of elements on a microarray. The resultant transcript image would provide a profile of gene activity pertaining to cell signaling.

Transcript images which profile sptm expression may be generated using transcripts isolated from tissues, cell lines, biopsies, or other biological samples. The transcript image may thus reflect sptm expression <u>in vivo</u>, as in the case of a tissue or biopsy sample, or <u>in vitro</u>, as in the case of a cell line.

Transcript images which profile sptm expression may also be used in conjunction with <u>in vitro</u> model systems and preclinical evaluation of pharmaceuticals, as well as toxicological testing of industrial and naturally-occurring environmental compounds. All compounds induce characteristic

gene expression patterns, frequently termed molecular fingerprints or toxicant signatures, which are indicative of mechanisms of action and toxicity (Nuwaysir, E. F. et al. (1999) Mol. Carcinog. 24:153-159; Steiner, S. and Anderson, N. L. (2000) Toxicol. Lett. 112-113:467-71, expressly incorporated by reference herein). If a test compound has a signature similar to that of a compound with known toxicity, it is likely to share those toxic properties. These fingerprints or signatures are most useful and refined when they contain expression information from a large number of genes and gene families. Ideally, a genome-wide measurement of expression provides the highest quality signature. Even genes whose expression is not altered by any tested compounds are important as well, as the levels of expression of these genes are used to normalize the rest of the expression data. The normalization procedure is useful for comparison of expression data after treatment with different compounds. While the assignment of gene function to elements of a toxicant signature aids in interpretation of toxicity mechanisms, knowledge of gene function is not necessary for the statistical matching of signatures which leads to prediction of toxicity. (See, for example, Press Release 00-02 from the National Institute of Environmental Health Sciences, released February 29, 2000, available at http://www.niehs.nih.gov/oc/news/toxchip.htm.) Therefore, it is important and desirable in toxicological screening using toxicant signatures to include all expressed gene sequences.

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In an embodiment, the toxicity of a test compound is assessed by treating a biological sample containing nucleic acids with the test compound. Nucleic acids that are expressed in the treated biological sample are hybridized with one or more probes specific to the polynucleotides of the present invention, so that transcript levels corresponding to the polynucleotides of the present invention may be quantified. The transcript levels in the treated biological sample are compared with levels in an untreated biological sample. Differences in the transcript levels between the two samples are indicative of a toxic response caused by the test compound in the treated sample.

Another particular embodiment relates to the use of SPTM encoded by polynucleotides of the present invention to analyze the proteome of a tissue or cell type. The term proteome refers to the global pattern of protein expression in a particular tissue or cell type. Each protein component of a proteome can be subjected individually to further analysis. Proteome expression patterns, or profiles, are analyzed by quantifying the number of expressed proteins and their relative abundance under given conditions and at a given time. A profile of a cell's proteome may thus be generated by separating and analyzing the polypeptides of a particular tissue or cell type. In one embodiment, the separation is achieved using two-dimensional gel electrophoresis, in which proteins from a sample are separated by isoelectric focusing in the first dimension, and then according to molecular weight by sodium dodecyl sulfate slab gel electrophoresis in the second dimension (Steiner and Anderson, supra). The proteins are visualized in the gel as discrete and uniquely positioned spots, typically by staining the gel with an agent such as Coomassie Blue or silver or fluorescent stains. The optical

density of each protein spot is generally proportional to the level of the protein in the sample. The optical densities of equivalently positioned protein spots from different samples, for example, from biological samples either treated or untreated with a test compound or therapeutic agent, are compared to identify any changes in protein spot density related to the treatment. The proteins in the spots are partially sequenced using, for example, standard methods employing chemical or enzymatic cleavage followed by mass spectrometry. The identity of the protein in a spot may be determined by comparing its partial sequence, preferably of at least 5 contiguous amino acid residues, to the polypeptide sequences of the present invention. In some cases, further sequence data may be obtained for definitive protein identification.

A proteomic profile may also be generated using antibodies specific for SPTM to quantify the levels of SPTM expression. In one embodiment, the antibodies are used as elements on a microarray, and protein expression levels are quantified by exposing the microarray to the sample and detecting the levels of protein bound to each array element (Lucking, A. et al. (1999) Anal. Biochem. 270:103-11; Mendoze, L. G. et al. (1999) Biotechniques 27:778-88). Detection may be performed by a variety of methods known in the art, for example, by reacting the proteins in the sample with a thiol- or aminoreactive fluorescent compound and detecting the amount of fluorescence bound at each array element.

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Toxicant signatures at the proteome level are also useful for toxicological screening, and should be analyzed in parallel with toxicant signatures at the transcript level. There is a poor correlation between transcript and protein abundances for some proteins in some tissues (Anderson, N. L. and Seilhamer, J. (1997) Electrophoresis 18:533-537), so proteome toxicant signatures may be useful in the analysis of compounds which do not significantly affect the transcript image, but which alter the proteomic profile. In addition, the analysis of transcripts in body fluids is difficult, due to rapid degradation of mRNA, so proteomic profiling may be more reliable and informative in such cases.

In another embodiment, the toxicity of a test compound is assessed by treating a biological sample containing proteins with the test compound. Proteins that are expressed in the treated biological sample are separated so that the amount of each protein can be quantified. The amount of each protein is compared to the amount of the corresponding protein in an untreated biological sample. A difference in the amount of protein between the two samples is indicative of a toxic response to the test compound in the treated sample. Individual proteins are identified by sequencing the amino acid residues of the individual proteins and comparing these partial sequences to the SPTM encoded by polynucleotides of the present invention.

In another embodiment, the toxicity of a test compound is assessed by treating a biological sample containing proteins with the test compound. Proteins from the biological sample are incubated with antibodies specific to the SPTM encoded by polynucleotides of the present invention. The

amount of protein recognized by the antibodies is quantified. The amount of protein in the treated biological sample is compared with the amount in an untreated biological sample. A difference in the amount of protein between the two samples is indicative of a toxic response to the test compound in the treated sample.

Transcript images may be used to profile sptm expression in distinct tissue types. This process can be used to determine cell signaling activity in a particular tissue type relative to this activity in a different tissue type. Transcript images may be used to generate a profile of sptm expression characteristic of diseased tissue. Transcript images of tissues before and after treatment may be used for diagnostic purposes, to monitor the progression of disease, and to monitor the efficacy of drug treatments for diseases which affect cell signaling activity.

Transcript images of cell lines can be used to assess cell signaling activity and/or to identify cell lines that lack or misregulate this activity. Such cell lines may then be treated with pharmaceutical agents, and a transcript image following treatment may indicate the efficacy of these agents in restoring desired levels of this activity. A similar approach may be used to assess the toxicity of pharmaceutical agents as reflected by undesirable changes in cell signaling activity. Candidate pharmaceutical agents may be evaluated by comparing their associated transcript images with those of pharmaceutical agents of known effectiveness.

#### Antisense Molecules

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The polynucleotides of the present invention are useful in antisense technology. Antisense technology or therapy relies on the modulation of expression of a target protein through the specific binding of an antisense sequence to a target sequence encoding the target protein or directing its expression. (See, e.g., Agrawal, S., ed. (1996) Antisense Therapeutics, Humana Press Inc., Totawa NJ; Alama, A. et al. (1997) Pharmacol. Res. 36(3):171-178; Crooke, S.T. (1997) Adv. Pharmacol. 40:1-49; Sharma, H.W. and R. Narayanan (1995) Bioessays 17(12):1055-1063; and Lavrosky, Y. et al. (1997) Biochem. Mol. Med. 62(1):11-22.) An antisense sequence is a polynucleotide sequence capable of specifically hybridizing to at least a portion of the target sequence. Antisense sequences bind to cellular mRNA and/or genomic DNA, affecting translation and/or transcription. Antisense sequences can be DNA, RNA, or nucleic acid mimics and analogs. (See, e.g., Rossi, J.J. et al. (1991) Antisense Res. Dev. 1(3):285-288; Lee, R. et al. (1998) Biochemistry 37(3):900-1010; Pardridge, W.M. et al. (1995) Proc. Natl. Acad. Sci. USA 92(12):5592-5596; and Nielsen, P. E. and Haaima, G. (1997) Chem. Soc. Rev. 96:73-78.) Typically, the binding which results in modulation of expression occurs through hybridization or binding of complementary base pairs. Antisense sequences can also bind to DNA duplexes through specific interactions in the major groove of the double helix.

The polynucleotides of the present invention and fragments thereof can be used as antisense

sequences to modify the expression of the polypeptide encoded by sptm. The antisense sequences can be produced <u>ex vivo</u>, such as by using any of the ABI nucleic acid synthesizer series (Applied Biosystems) or other automated systems known in the art. Antisense sequences can also be produced biologically, such as by transforming an appropriate host cell with an expression vector containing the sequence of interest. (See, e.g., Agrawal, <u>supra</u>.)

In therapeutic use, any gene delivery system suitable for introduction of the antisense sequences into appropriate target cells can be used. Antisense sequences can be delivered intracellularly in the form of an expression plasmid which, upon transcription, produces a sequence complementary to at least a portion of the cellular sequence encoding the target protein. (See, e.g., Slater, J.E., et al. (1998) J. Allergy Clin. Immunol. 102(3):469-475; and Scanlon, K.J., et al. (1995) 9(13):1288-1296.) Antisense sequences can also be introduced intracellularly through the use of viral vectors, such as retrovirus and adeno-associated virus vectors. (See, e.g., Miller, A.D. (1990) Blood 76:271; Ausubel, F.M. et al. (1995) Current Protocols in Molecular Biology, John Wiley & Sons, New York NY; Uckert, W. and W. Walther (1994) Pharmacol. Ther. 63(3):323-347.) Other gene delivery mechanisms include liposome-derived systems, artificial viral envelopes, and other systems known in the art. (See, e.g., Rossi, J.J. (1995) Br. Med. Bull. 51(1):217-225; Boado, R.J. et al. (1998) J. Pharm. Sci. 87(11):1308-1315; and Morris, M.C. et al. (1997) Nucleic Acids Res. 25(14):2730-2736.)

#### Expression

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In order to express a biologically active SPTM, the nucleotide sequences encoding SPTM or fragments thereof may be inserted into an appropriate expression vector, i.e., a vector which contains the necessary elements for transcriptional and translational control of the inserted coding sequence in a suitable host. Methods which are well known to those skilled in the art may be used to construct expression vectors containing sequences encoding SPTM and appropriate transcriptional and translational control elements. These methods include in vitro recombinant DNA techniques, synthetic techniques, and in vivo genetic recombination. (See, e.g., Sambrook, supra, Chapters 4, 8, 16, and 17; and Ausubel, supra, Chapters 9, 10, 13, and 16.)

A variety of expression vector/host systems may be utilized to contain and express sequences encoding SPTM. These include, but are not limited to, microorganisms such as bacteria transformed with recombinant bacteriophage, plasmid, or cosmid DNA expression vectors; yeast transformed with yeast expression vectors; insect cell systems infected with viral expression vectors (e.g., baculovirus); plant cell systems transformed with viral expression vectors (e.g., cauliflower mosaic virus, CaMV, or tobacco mosaic virus, TMV) or with bacterial expression vectors (e.g., Ti or pBR322 plasmids); or animal (mammalian) cell systems. (See, e.g., Sambrook, supra; Ausubel, 1995, supra, Van Heeke, G. and S.M. Schuster (1989) J. Biol. Chem. 264:5503-5509; Bitter, G.A. et al. (1987) Methods Enzymol.

153:516-544; Scorer, C.A. et al. (1994) Bio/Technology 12:181-184; Engelhard, E.K. et al. (1994) Proc. Natl. Acad. Sci. USA 91:3224-3227; Sandig, V. et al. (1996) Hum. Gene Ther. 7:1937-1945; Takamatsu, N. (1987) EMBO J. 6:307-311; Coruzzi, G. et al. (1984) EMBO J. 3:1671-1680; Broglie, R. et al. (1984) Science 224:838-843; Winter, J. et al. (1991) Results Probl. Cell Differ. 17:85-105;

The McGraw Hill Yearbook of Science and Technology (1992) McGraw Hill, New York NY, pp. 191-196; Logan, J. and T. Shenk (1984) Proc. Natl. Acad. Sci. USA 81:3655-3659; and Harrington, J.J. et al. (1997) Nat. Genet. 15:345-355.) Expression vectors derived from retroviruses, adenoviruses, or herpes or vaccinia viruses, or from various bacterial plasmids, may be used for delivery of nucleotide sequences to the targeted organ, tissue, or cell population. (See, e.g., Di Nicola, M. et al. (1998) Cancer Gen. Ther. 5(6):350-356; Yu, M. et al., (1993) Proc. Natl. Acad. Sci. USA 90(13):6340-6344; Buller, R.M. et al. (1985) Nature 317(6040):813-815; McGregor, D.P. et al. (1994) Mol. Immunol. 31(3):219-226; and Verma, I.M. and N. Somia (1997) Nature 389:239-242.) The invention is not limited by the host cell employed.

For long term production of recombinant proteins in mammalian systems, stable expression of SPTM in cell lines is preferred. For example, sequences encoding SPTM can be transformed into cell lines using expression vectors which may contain viral origins of replication and/or endogenous expression elements and a selectable marker gene on the same or on a separate vector. Any number of selection systems may be used to recover transformed cell lines. (See, e.g., Wigler, M. et al. (1977) Cell 11:223-232; Lowy, I. et al. (1980) Cell 22:817-823.; Wigler, M. et al. (1980) Proc. Natl. Acad. Sci. USA 77:3567-3570; Colbere-Garapin, F. et al. (1981) J. Mol. Biol. 150:1-14; Hartman, S.C. and R.C.Mulligan (1988) Proc. Natl. Acad. Sci. USA 85:8047-8051; Rhodes, C.A. (1995) Methods Mol. Biol. 55:121-131.)

## Therapeutic Uses of sptm

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The polynucleotides encoding SPTM of the invention may be used for somatic or germline gene therapy. Gene therapy may be performed to (i) correct a genetic deficiency (e.g., in the cases of severe combined immunodeficiency (SCID)-X1 disease characterized by X-linked inheritance (Cavazzana-Calvo, M. et al. (2000) Science 288:669-672), severe combined immunodeficiency syndrome associated with an inherited adenosine deaminase (ADA) deficiency (Blaese, R.M. et al. (1995) Science 270:475-480; Bordignon, C. et al. (1995) Science 270:470-475), cystic fibrosis (Zabner, J. et al. (1993) Cell 75:207-216; Crystal, R.G. et al. (1995) Hum. Gene Therapy 6:643-666; Crystal, R.G. et al. (1995) Hum. Gene Therapy 6:667-703), thalassemias, familial hypercholesterolemia, and hemophilia resulting from Factor VIII or Factor IX deficiencies (Crystal, R.G. (1995) Science 270:404-410; Verma, I.M. and Somia, N. (1997) Nature 389:239-242)), (ii) express a conditionally lethal gene product (e.g., in the case of cancers which result from unregulated cell proliferation), or

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(iii) express a protein which affords protection against intracellular parasites (e.g., against human retroviruses, such as human immunodeficiency virus (HIV) (Baltimore, D. (1988) Nature 335:395-396; Poeschla, E. et al. (1996) Proc. Natl. Acad. Sci. USA. 93:11395-11399), hepatitis B or C virus (HBV, HCV); fungal parasites, such as <u>Candida albicans</u> and <u>Paracoccidioides brasiliensis</u>; and protozoan parasites such as <u>Plasmodium falciparum</u> and <u>Trypanosoma cruzi</u>). In the case where a genetic deficiency in sptm expression or regulation causes disease, the expression of sptm from an appropriate population of transduced cells may alleviate the clinical manifestations caused by the genetic deficiency.

In a further embodiment of the invention, diseases or disorders caused by deficiencies in sptm are treated by constructing mammalian expression vectors comprising sptm and introducing these vectors by mechanical means into sptm-deficient cells. Mechanical transfer technologies for use with cells in vivo or ex vitro include (i) direct DNA microinjection into individual cells, (ii) ballistic gold particle delivery, (iii) liposome-mediated transfection, (iv) receptor-mediated gene transfer, and (v) the use of DNA transposons (Morgan, R.A. and Anderson, W.F. (1993) Annu. Rev. Biochem. 62:191-217; Ivics, Z. (1997) Cell 91:501-510; Boulay, J-L. and Récipon, H. (1998) Curr. Opin. Biotechnol. 9:445-450).

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Expression vectors that may be effective for the expression of sptm include, but are not limited to, the PCDNA 3.1, EPITAG, PRCCMV2, PREP, PVAX vectors (Invitrogen, Carlsbad CA), PCMV-SCRIPT, PCMV-TAG, PEGSH/PERV (Stratagene, La Jolla CA), and PTET-OFF, PTET-ON, PTRE2, PTRE2-LUC, PTK-HYG (Clontech, Palo Alto CA). The sptm of the invention may be expressed using (i) a constitutively active promoter, (e.g., from cytomegalovirus (CMV), Rous sarcoma virus (RSV), SV40 virus, thymidine kinase (TK), or β-actin genes), (ii) an inducible promoter (e.g., the tetracycline-regulated promoter (Gossen, M. and Bujard, H. (1992) Proc. Natl. Acad. Sci. U.S.A. 89:5547-5551; Gossen, M. et al., (1995) Science 268:1766-1769; Rossi, F.M.V. and Blau, H.M. (1998) Curr. Opin. Biotechnol. 9:451-456), commercially available in the T-REX plasmid (Invitrogen); the ecdysone-inducible promoter (available in the plasmids PVGRXR and PIND; Invitrogen); the FK506/rapamycin inducible promoter; or the RU486/mifepristone inducible promoter (Rossi, F.M.V. and Blau, H.M. supra), or (iii) a tissue-specific promoter or the native promoter of the endogenous gene encoding SPTM from a normal individual.

Commercially available liposome transformation kits (e.g., the PERFECT LIPID TRANSFECTION KIT, available from Invitrogen) allow one with ordinary skill in the art to deliver polynucleotides to target cells in culture and require minimal effort to optimize experimental parameters. In the alternative, transformation is performed using the calcium phosphate method (Graham, F.L. and Eb, A.J. (1973) Virology 52:456-467), or by electroporation (Neumann, E. et al. (1982) EMBO J. 1:841-845). The introduction of DNA to primary cells involves modification of these

standardized mammalian transfection protocols.

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In another embodiment of the invention, diseases or disorders caused by genetic defects with respect to sptm expression are treated by constructing a retrovirus vector consisting of (i) sptm under the control of an independent promoter or the retrovirus long terminal repeat (LTR) promoter, (ii) appropriate RNA packaging signals, and (iii) a Rev-responsive element (RRE) along with additional retrovirus cis-acting RNA sequences and coding sequences required for efficient vector propagation. Retrovirus vectors (e.g., PFB and PFBNEO) are commercially available (Stratagene) and are based on published data (Riviere, I. et al. (1995) Proc. Natl. Acad. Sci. U.S.A. 92:6733-6737), incorporated by reference herein. The vector is propagated in an appropriate vector producing cell line (VPCL) that expresses an envelope gene with a tropism for receptors on the target cells or a promiscuous envelope protein such as VSVg (Armentano, D. et al. (1987) J. Virol. 61:1647-1650; Bender, M.A. et al. (1987) J. Virol. 61:1639-1646; Adam, M.A. and Miller, A.D. (1988) J. Virol. 62:3802-3806; Dull, T. et al. (1998) J. Virol. 72:8463-8471; Zufferey, R. et al. (1998) J. Virol. 72:9873-9880). U.S. Patent Number 5,910,434 to Rigg ("Method for obtaining retrovirus packaging cell lines producing high transducing efficiency retroviral supernatant") discloses a method for obtaining retrovirus packaging cell lines and is hereby incorporated by reference. Propagation of retrovirus vectors, transduction of a population of cells (e.g., CD4+ T-cells), and the return of transduced cells to a patient are procedures well known to persons skilled in the art of gene therapy and have been well documented (Ranga, U. et al. (1997) J. Virol. 71:7020-7029; Bauer, G. et al. (1997) Blood 89:2259-2267; Bonyhadi, M.L. (1997) J. Virol. 71:4707-4716; Ranga, U. et al. (1998) Proc. Natl. Acad. Sci. U.S.A. 95:1201-1206; Su, L. (1997) Blood 89:2283-2290).

In the alternative, an adenovirus-based gene therapy delivery system is used to deliver sptm to cells which have one or more genetic abnormalities with respect to the expression of sptm. The construction and packaging of adenovirus-based vectors are well known to those with ordinary skill in the art. Replication defective adenovirus vectors have proven to be versatile for importing genes encoding immunoregulatory proteins into intact islets in the pancreas (Csete, M.E. et al. (1995) Transplantation 27:263-268). Potentially useful adenoviral vectors are described in U.S. Patent Number 5,707,618 to Armentano ("Adenovirus vectors for gene therapy"), hereby incorporated by reference. For adenoviral vectors, see also Antinozzi, P.A. et al. (1999) Annu. Rev. Nutr. 19:511-544 and Verma, I.M. and Somia, N. (1997) Nature 18:389:239-242, both incorporated by reference herein.

In another alternative, a herpes-based, gene therapy delivery system is used to deliver sptm to target cells which have one or more genetic abnormalities with respect to the expression of sptm. The use of herpes simplex virus (HSV)-based vectors may be especially valuable for introducing sptm to cells of the central nervous system, for which HSV has a tropism. The construction and packaging of herpes-based vectors are well known to those with ordinary skill in the art. A replication-competent

herpes simplex virus (HSV) type 1-based vector has been used to deliver a reporter gene to the eyes of primates (Liu, X. et al. (1999) Exp. Eye Res.169:385-395). The construction of a HSV-1 virus vector has also been disclosed in detail in U.S. Patent Number 5,804,413 to DeLuca ("Herpes simplex virus strains for gene transfer"), which is hereby incorporated by reference. U.S. Patent Number 5,804,413 teaches the use of recombinant HSV d92 which consists of a genome containing at least one exogenous gene to be transferred to a cell under the control of the appropriate promoter for purposes including human gene therapy. Also taught by this patent are the construction and use of recombinant HSV strains deleted for ICP4, ICP27 and ICP22. For HSV vectors, see also Goins, W. F. et al. 1999 J. Virol. 73:519-532 and Xu, H. et al., (1994) Dev. Biol. 163:152-161, hereby incorporated by reference. The manipulation of cloned herpesvirus sequences, the generation of recombinant virus following the transfection of multiple plasmids containing different segments of the large herpesvirus genomes, the growth and propagation of herpesvirus, and the infection of cells with herpesvirus are techniques well known to those of ordinary skill in the art.

In another alternative, an alphavirus (positive, single-stranded RNA virus) vector is used to deliver sptm to target cells. The biology of the prototypic alphavirus, Semliki Forest Virus (SFV), has been studied extensively and gene transfer vectors have been based on the SFV genome (Garoff, H. and Li, K-J. (1998) Curr. Opin. Biotech. 9:464-469). During alphavirus RNA replication, a subgenomic RNA is generated that normally encodes the viral capsid proteins. This subgenomic RNA replicates to higher levels than the full-length genomic RNA, resulting in the overproduction of capsid proteins relative to the viral proteins with enzymatic activity (e.g., protease and polymerase). Similarly, inserting sptm into the alphavirus genome in place of the capsid-coding region results in the production of a large number of sptm RNAs and the synthesis of high levels of SPTM in vector transduced cells. While alphavirus infection is typically associated with cell lysis within a few days, the ability to establish a persistent infection in hamster normal kidney cells (BHK-21) with a variant of Sindbis virus (SIN) indicates that the lytic replication of alphaviruses can be altered to suit the needs of the gene therapy application (Dryga, S.A. et al. (1997) Virology 228:74-83). The wide host range of alphaviruses will allow the introduction of sptm into a variety of cell types. The specific transduction of a subset of cells in a population may require the sorting of cells prior to transduction. The methods of manipulating infectious cDNA clones of alphaviruses, performing alphavirus cDNA and RNA transfections, and performing alphavirus infections, are well known to those with ordinary skill in the art.

### **Antibodies**

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Anti-SPTM antibodies may be used to analyze protein expression levels. Such antibodies include, but are not limited to, polyclonal, monoclonal, chimeric, single chain, and Fab fragments. For

descriptions of and protocols of antibody technologies, see, e.g., Pound J.D. (1998) <u>Immunochemical</u> <u>Protocols</u>, Humana Press, Totowa, NJ.

The amino acid sequence encoded by the sptm of the Sequence Listing may be analyzed by appropriate software (e.g., LASERGENE NAVIGATOR software, DNASTAR) to determine regions of high immunogenicity. The optimal sequences for immunization are selected from the C-terminus, the N-terminus, and those intervening, hydrophilic regions of the polypeptide which are likely to be exposed to the external environment when the polypeptide is in its natural conformation.

Analysis used to select appropriate epitopes is also described by Ausubel (1997, <a href="supra">supra</a>, Chapter 11.7).

Peptides used for antibody induction do not need to have biological activity; however, they should be antigenic. Peptides used to induce specific antibodies may have an amino acid sequence consisting of at least five amino acids, preferably at least 10 amino acids, and most preferably at least 15 amino acids. A peptide which mimics an antigenic fragment of the natural polypeptide may be fused with another protein such as keyhole limpet hemocyanin (KLH; Sigma, St. Louis MO) for antibody production. A peptide encompassing an antigenic region may be expressed from an sptm, synthesized as described above, or purified from human cells.

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Procedures well known in the art may be used for the production of antibodies. Various hosts including mice, goats, and rabbits, may be immunized by injection with a peptide. Depending on the host species, various adjuvants may be used to increase immunological response.

In one procedure, peptides about 15 residues in length may be synthesized using an ABI 431A peptide synthesizer (Applied Biosystems) using fmoc-chemistry and coupled to KLH (Sigma) by reaction with M-maleimidobenzoyl-N-hydroxysuccinimide ester (Ausubel, 1995, supra). Rabbits are immunized with the peptide-KLH complex in complete Freund's adjuvant. The resulting antisera are tested for antipeptide activity by binding the peptide to plastic, blocking with 1% bovine serum albumin (BSA), reacting with rabbit antisera, washing, and reacting with radioiodinated goat anti-rabbit IgG. Antisera with antipeptide activity are tested for anti-SPTM activity using protocols well known in the art, including ELISA, radioimmunoassay (RIA), and immunoblotting.

In another procedure, isolated and purified peptide may be used to immunize mice (about 100  $\mu$ g of peptide) or rabbits (about 1 mg of peptide). Subsequently, the peptide is radioiodinated and used to screen the immunized animals' B-lymphocytes for production of antipeptide antibodies. Positive cells are then used to produce hybridomas using standard techniques. About 20 mg of peptide is sufficient for labeling and screening several thousand clones. Hybridomas of interest are detected by screening with radioiodinated peptide to identify those fusions producing peptide-specific monoclonal antibody. In a typical protocol, wells of a multi-well plate (FAST, Becton-Dickinson, Palo Alto, CA) are coated with affinity-purified, specific rabbit-anti-mouse (or suitable anti-species IgG) antibodies at 10 mg/ml. The coated wells are blocked with 1% BSA and washed and exposed to supernatants from

hybridomas. After incubation, the wells are exposed to radiolabeled peptide at 1 mg/ml.

Clones producing antibodies bind a quantity of labeled peptide that is detectable above background. Such clones are expanded and subjected to 2 cycles of cloning. Cloned hybridomas are injected into pristane-treated mice to produce ascites, and monoclonal antibody is purified from the ascitic fluid by affinity chromatography on protein A (Amersham Pharmacia Biotech). Several procedures for the production of monoclonal antibodies, including in vitro production, are described in Pound (supra). Monoclonal antibodies with antipeptide activity are tested for anti-SPTM activity using protocols well known in the art, including ELISA, RIA, and immunoblotting.

Antibody fragments containing specific binding sites for an epitope may also be generated. For example, such fragments include, but are not limited to, the F(ab)2 fragments produced by pepsin digestion of the antibody molecule, and the Fab fragments generated by reducing the disulfide bridges of the F(ab)2 fragments. Alternatively, construction of Fab expression libraries in filamentous bacteriophage allows rapid and easy identification of monoclonal fragments with desired specificity (Pound, supra, Chaps. 45-47). Antibodies generated against polypeptide encoded by sptm can be used to purify and characterize full-length SPTM protein and its activity, binding partners, etc.

#### Assays Using Antibodies

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Anti-SPTM antibodies may be used in assays to quantify the amount of SPTM found in a particular human cell. Such assays include methods utilizing the antibody and a label to detect expression level under normal or disease conditions. The peptides and antibodies of the invention may be used with or without modification or labeled by joining them, either covalently or noncovalently, with a reporter molecule.

Protocols for detecting and measuring protein expression using either polyclonal or monoclonal antibodies are well known in the art. Examples include ELISA, RIA, and fluorescent activated cell sorting (FACS). Such immunoassays typically involve the formation of complexes between the SPTM and its specific antibody and the measurement of such complexes. These and other assays are described in Pound (supra).

Without further elaboration, it is believed that one skilled in the art can, using the preceding description, utilize the present invention to its fullest extent. The following embodiments are, therefore, to be construed as merely illustrative, and not limitative of the remainder of the disclosure in any way whatsoever.

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The disclosures of all patents, applications, and publications mentioned above and below, including U.S. Application Ser. No. 60/280,067, U.S. Application Ser. No. 60/280,068, U.S. Application Ser. No. 60/291,849, U.S. Application Ser. No. 60/291,849, U.S. Application Ser. No. 60/299,428, U.S. Application Ser. No. 60/300,001, and U.S. Application Ser. No. 60/299,776, are hereby expressly incorporated by reference herein.

#### **EXAMPLES**

### I. Construction of cDNA Libraries

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RNA was purchased from CLONTECH Laboratories, Inc. (Palo Alto CA) or isolated from various tissues. Some tissues were homogenized and lysed in guanidinium isothiocyanate, while others were homogenized and lysed in phenol or in a suitable mixture of denaturants, such as TRIZOL (Life Technologies), a monophasic solution of phenol and guanidine isothiocyanate. The resulting lysates were centrifuged over CsCl cushions or extracted with chloroform. RNA was precipitated with either isopropanol or sodium acetate and ethanol, or by other routine methods.

Phenol extraction and precipitation of RNA were repeated as necessary to increase RNA purity. In most cases, RNA was treated with DNase. For most libraries, poly(A+) RNA was isolated using oligo d(T)-coupled paramagnetic particles (Promega Corporation (Promega), Madison WI), OLIGOTEX latex particles (QIAGEN, Inc. (QIAGEN), Valencia CA), or an OLIGOTEX mRNA purification kit (QIAGEN). Alternatively, RNA was isolated directly from tissue lysates using other RNA isolation kits, e.g., the POLY(A)PURE mRNA purification kit (Ambion, Inc., Austin TX).

In some cases, Stratagene was provided with RNA and constructed the corresponding cDNA libraries. Otherwise, cDNA was synthesized and cDNA libraries were constructed with the UNIZAP vector system (Stratagene Cloning Systems, Inc. (Stratagene), La Jolla CA) or SUPERSCRIPT plasmid system (Life Technologies), using the recommended procedures or similar methods known in the art. (See, e.g., Ausubel, 1997, <a href="supra">supra</a>, Chapters 5.1 through 6.6.) Reverse transcription was initiated using oligo d(T) or random primers. Synthetic oligonucleotide adapters were ligated to double stranded cDNA, and the cDNA was digested with the appropriate restriction enzyme or enzymes. For most libraries, the cDNA was size-selected (300-1000 bp) using SEPHACRYL S1000, SEPHAROSE CL2B, or SEPHAROSE CL4B column chromatography (Amersham Pharmacia Biotech) or preparative agarose gel electrophoresis. cDNAs were ligated into compatible restriction enzyme sites of the polylinker of a suitable plasmid, e.g., PBLUESCRIPT plasmid (Stratagene), PSPORT1 plasmid (Life Technologies), PCDNA2.1 plasmid (Invitrogen, Carlsbad CA), PBK-CMV plasmid (Stratagene), PCR2-TOPOTA plasmid (Invitrogen), PCMV-ICIS plasmid (Stratagene), pIGEN (Incyte Genomics, Palo Alto CA), pRARE (Incyte Genomics), or pINCY (Incyte Genomics), or derivatives thereof. Recombinant plasmids were transformed into

competent <u>E. coli</u> cells including XL1-Blue, XL1-BlueMRF, or SOLR from Stratagene or DH5a, DH10B, or ElectroMAX DH10B from Life Technologies.

### II. Isolation of cDNA Clones

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Plasmids were recovered from host cells by in vivo excision using the UNIZAP vector system (Stratagene) or by cell lysis. Plasmids were purified using at least one of the following: the Magic or WIZARD Minipreps DNA purification system (Promega); the AGTC Miniprep purification kit (Edge BioSystems, Gaithersburg MD); and the QIAWELL 8, QIAWELL 8 Plus, and QIAWELL 8 Ultra plasmid purification systems or the R.E.A.L. PREP 96 plasmid purification kit (QIAGEN). Following precipitation, plasmids were resuspended in 0.1 ml of distilled water and stored, with or without lyophilization, at 4°C.

Alternatively, plasmid DNA was amplified from host cell lysates using direct link PCR in a high-throughput format. (Rao, V.B. (1994) Anal. Biochem. 216:1-14.) Host cell lysis and thermal cycling steps were carried out in a single reaction mixture. Samples were processed and stored in 384-well plates, and the concentration of amplified plasmid DNA was quantified fluorometrically using PICOGREEN dye (Molecular Probes, Inc. (Molecular Probes), Eugene OR) and a FLUOROSKAN II fluorescence scanner (Labsystems Oy, Helsinki, Finland).

## III. Sequencing and Analysis

cDNA sequencing reactions were processed using standard methods or high-throughput instrumentation such as the ABI CATALYST 800 thermal cycler (Applied Biosystems) or the PTC-200 thermal cycler (MJ Research) in conjunction with the HYDRA microdispenser (Robbins Scientific Corp., Sunnyvale CA) or the MICROLAB 2200 liquid transfer system (Hamilton). cDNA sequencing reactions were prepared using reagents provided by Amersham Pharmacia Biotech or supplied in ABI sequencing kits such as the ABI PRISM BIGDYE Terminator cycle sequencing ready reaction kit (Applied Biosystems). Electrophoretic separation of cDNA sequencing reactions and detection of labeled polynucleotides were carried out using the MEGABACE 1000 DNA sequencing system (Molecular Dynamics); the ABI PRISM 373 or 377 sequencing system (Applied Biosystems) in conjunction with standard ABI protocols and base calling software; or other sequence analysis systems known in the art. Reading frames within the cDNA sequences were identified using standard methods (reviewed in Ausubel, 1997, supra, Chapter 7.7). Some of the cDNA sequences were selected for extension using the techniques disclosed in Example VIII.

#### IV. Assembly and Analysis of Sequences

Component sequences from chromatograms were subject to PHRED analysis and assigned a

quality score. The sequences having at least a required quality score were subject to various preprocessing editing pathways to eliminate, e.g., low quality 3'ends, vector and linker sequences, polyA tails, Alu repeats, mitochondrial and ribosomal sequences, bacterial contamination sequences, and sequences smaller than 50 base pairs. In particular, low-information sequences and repetitive elements (e.g., dinucleotide repeats, Alu repeats, etc.) were replaced by "n's", or masked, to prevent spurious matches.

Processed sequences were then subject to assembly procedures in which the sequences were assigned to gene bins (bins). Each sequence could only belong to one bin. Sequences in each gene bin were assembled to produce consensus sequences (templates). Subsequent new sequences were added to existing bins using BLASTN (v.1.4 WashU) and CROSSMATCH. Candidate pairs were identified as all BLAST hits having a quality score greater than or equal to 150. Alignments of at least 82% local identity were accepted into the bin. The component sequences from each bin were assembled using a version of PHRAP. Bins with several overlapping component sequences were assembled using DEEP PHRAP. The orientation (sense or antisense) of each assembled template was determined based on the number and orientation of its component sequences. Template sequences as disclosed in the sequence listing correspond to sense strand sequences (the "forward" reading frames), to the best determination. The complementary (antisense) strands are inherently disclosed herein. The component sequences which were used to assemble each template consensus sequence are listed in Table 3 by their positions along the template nucleotide sequences.

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Bins were compared against each other and those having local similarity of at least 82% were combined and reassembled. Reassembled bins having templates of insufficient overlap (less than 95% local identity) were re-split. Assembled templates were also subject to analysis by STITCHER/EXON MAPPER algorithms which analyze the probabilities of the presence of splice variants, alternatively spliced exons, splice junctions, differential expression of alternative spliced genes across tissue types or disease states, etc. These resulting bins were subject to several rounds of the above assembly procedures.

Once gene bins were generated based upon sequence alignments, bins were clone joined based upon clone information. If the 5' sequence of one clone was present in one bin and the 3' sequence from the same clone was present in a different bin, it was likely that the two bins actually belonged together in a single bin. The resulting combined bins underwent assembly procedures to regenerate the consensus sequences.

The final assembled templates were subsequently annotated using the following procedure. Template sequences were analyzed using BLASTN (v2.0, NCBI) versus gbpri (GenBank version 128). "Hits" were defined as an exact match having from 95% local identity over 200 base pairs through 100% local identity over 100 base pairs, or a homolog match having an E-value, i.e. a

probability score, of  $\leq 1 \times 10^{-8}$ . The hits were subject to frameshift FASTx versus GENPEPT (GenBank version 128). (See Table 6). In this analysis, a homolog match was defined as having an E-value of  $\leq 1 \times 10^{-8}$ . The assembly method used above was described in "System and Methods for Analyzing Biomolecular Sequences," U.S.S.N. 09/276,534, filed March 25, 1999, and the LIFESEQ Gold user manual (Incyte) both incorporated by reference herein.

Following assembly, template sequences were subjected to motif, BLAST, and functional analyses, and categorized in protein hierarchies using methods described in, e.g., "Database System Employing Protein Function Hierarchies for Viewing Biomolecular Sequence Data," U.S. Patent Number 6,023,659; "Relational Database for Storing Biomolecule Information," U.S.S.N. 08/947,845, filed October 9, 1997; "Project-Based Full-Length Biomolecular Sequence Database," U.S. Patent Number 5,953,727; and "Relational Database and System for Storing Information Relating to Biomolecular Sequences," U.S.S.N. 09/034,807, filed March 4, 1998, all of which are incorporated by reference herein.

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The template sequences were further analyzed by translating each template in all three forward reading frames and searching each translation against the Pfam database of hidden Markov model-based protein families and domains using the HMMER software package (available to the public from Washington University School of Medicine, St. Louis MO). (See also World Wide Web site http://pfam.wustl.edu/ for detailed descriptions of Pfam protein domains and families.)

Additionally, the template sequences were translated in all three forward reading frames, and each translation was searched against hidden Markov models for signal peptides using the HMMER software package. Construction of hidden Markov models and their usage in sequence analysis has been described. (See, for example, Eddy, S.R. (1996) Curr. Opin. Str. Biol. 6:361-365.) Only those signal peptide hits with a cutoff score of 11 bits or greater are reported. A cutoff score of 11 bits or greater corresponds to at least about 91-94% true-positives in signal peptide prediction. Template sequences were also translated in all three forward reading frames, and each translation was searched against TMHMMER, a program that uses a hidden Markov model (HMM) to delineate transmembrane segments on protein sequences and determine orientation (Sonnhammer, E.L. et al. (1998) Proc. Sixth Intl. Conf. On Intelligent Systems for Mol. Biol., Glasgow et al., eds., The Am. Assoc. for Artificial Intelligence (AAAI) Press, Menlo Park, CA, and MIT Press, Cambridge, MA, pp. 175-182.) Regions of templates which, when translated, contain similarity to signal peptide or transmembrane consensus sequences are reported in Table 2.

Template sequences are further analyzed using the bioinformatics tools listed in Table 6, or using sequence analysis software known in the art such as MACDNASIS PRO software (Hitachi Software Engineering, South San Francisco CA) and LASERGENE software (DNASTAR).

35 Template sequences may be further queried against public databases such as the GenBank rodent,

mammalian, vertebrate, prokaryote, and eukaryote databases.

The template sequences were translated to derive the corresponding longest open reading frame as presented by the polypeptide sequences as reported in Table 5. Alternatively, a polypeptide of the invention may begin at any of the methionine residues within the full length translated polypeptide. Polypeptide sequences were subsequently analyzed by querying against the GenBank protein database (GENPEPT, (GenBank version 128)). Full length polynucleotide sequences are also analyzed using MACDNASIS PRO software (Hitachi Software Engineering, South San Francisco CA) and LASERGENE software (DNASTAR). Polynucleotide and polypeptide sequence alignments are generated using default parameters specified by the CLUSTAL algorithm as incorporated into the MEGALIGN multisequence alignment program (DNASTAR), which also calculates the percent identity between aligned sequences.

Table 5 shows sequences with homology to the polypeptides of the invention as identified by BLAST analysis against the GenBank protein (GENPEPT) database. Column 1 shows the polypeptide sequence identification number (SEQ ID NO:) for the polypeptide segments of the invention. Column 2 shows the reading frame used in the translation of the polypucleotide sequences encoding the polypeptide segments. Column 3 shows the length of the translated polypeptide segments. Columns 4 and 5 show the start and stop nucleotide positions of the polypucleotide sequences encoding the polypeptide segments. Column 6 shows the GenBank identification number (GI Number) of the nearest GenBank homolog. Column 7 shows the probability score for the match between each polypeptide and its GenBank homolog. Column 8 shows the annotation of the GenBank homolog.

#### V. Analysis of Polynucleotide Expression

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Northern analysis is a laboratory technique used to detect the presence of a transcript of a gene and involves the hybridization of a labeled nucleotide sequence to a membrane on which RNAs from a particular cell type or tissue have been bound. (See, e.g., Sambrook, <u>supra</u>, ch. 7; Ausubel, 1995, <u>supra</u>, ch. 4 and 16.)

Analogous computer techniques applying BLAST were used to search for identical or related molecules in cDNA databases such as GenBank or LIFESEQ (Incyte Genomics). This analysis is much faster than multiple membrane-based hybridizations. In addition, the sensitivity of the computer search can be modified to determine whether any particular match is categorized as exact or similar. The basis of the search is the product score, which is defined as:

# BLAST Score x Percent Identity

5 x minimum {length(Seq. 1), length(Seq. 2)}

The product score takes into account both the degree of similarity between two sequences and the length of the sequence match. The product score is a normalized value between 0 and 100, and is calculated as follows: the BLAST score is multiplied by the percent nucleotide identity and the product is divided by (5 times the length of the shorter of the two sequences). The BLAST score is calculated by assigning a score of +5 for every base that matches in a high-scoring segment pair (HSP), and -4 for every mismatch. Two sequences may share more than one HSP (separated by gaps). If there is more than one HSP, then the pair with the highest BLAST score is used to calculate the product score. The product score represents a balance between fractional overlap and quality in a BLAST alignment. For example, a product score of 100 is produced only for 100% identity over the entire length of the shorter of the two sequences being compared. A product score of 70 is produced either by 100% identity and 70% overlap at one end, or by 88% identity and 100% overlap at the other. A product score of 50 is produced either by 100% identity and 50% overlap at one end, or 79% identity and 100% overlap.

Alternatively, polynucleotide sequences encoding SPTM are analyzed with respect to the tissue sources from which they were derived. Polynucleotide sequences encoding SPTM were assembled, at least in part, with overlapping Incyte cDNA sequences. Each cDNA sequence is derived from a cDNA library constructed from a human tissue. Each human tissue is classified into one of the following organ/tissue categories: cardiovascular system; connective tissue; digestive system; embryonic structures; endocrine system; exocrine glands; genitalia, female; genitalia, male; germ cells; hemic and immune system; liver; musculoskeletal system; nervous system; pancreas; respiratory system; sense organs; skin; stomatognathic system; unclassified/mixed; or urinary tract. The number of libraries in each category for each polynucleotide sequence encoding SPTM is counted and divided by the total number of libraries across all categories for each polynucleotide sequence encoding SPTM. Similarly, each human tissue is classified into one of the following disease/condition categories: cancer, cell line, developmental, inflammation, neurological, trauma, cardiovascular, pooled, and other, and the number of libraries in each category for each polynucleotide sequence encoding SPTM is counted and divided by the total number of libraries across all categories for each polynucleotide sequence encoding SPTM. The resulting percentages reflect the tissue-specific and disease-specific expression of cDNA encoding SPTM. Percentage values of tissue-specific expression are reported in . cDNA sequences and cDNA library/tissue information are found in the LIFESEQ GOLD database (Incyte Genomics, Palo Alto CA).

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#### VI. Tissue Distribution Profiling

A tissue distribution profile is determined for each template by compiling the cDNA library tissue classifications of its component cDNA sequences. Each component sequence, is derived from a cDNA library constructed from a human tissue. Each human tissue is classified into one of the following categories: cardiovascular system; connective tissue; digestive system; embryonic structures; endocrine system; exocrine glands; genitalia, female; genitalia, male; germ cells; hemic and immune system; liver; musculoskeletal system; nervous system; pancreas; respiratory system; sense organs; skin; stomatognathic system; unclassified/mixed; or urinary tract. Template sequences, component sequences, and cDNA library/tissue information are found in the LIFESEQ GOLD database (Incyte Genomics, Palo Alto CA).

shows the tissue distribution profile for the templates of the invention. For each template, the three most frequently observed tissue categories are shown in column 2, along with the percentage of component sequences belonging to each category. Only tissue categories with percentage values of ≥10% are shown. A tissue distribution of "widely distributed" in column 2 indicates percentage values of <10% in all tissue categories.

## VII. Transcript Image Analysis

Transcript images are generated as described in Seilhamer et al., "Comparative Gene Transcript Analysis," U.S. Patent Number 5,840,484, incorporated herein by reference.

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#### VIII. Extension of Polynucleotide Sequences and Isolation of a Full-length cDNA

Oligonucleotide primers designed using an sptm of the Sequence Listing are used to extend the nucleic acid sequence. One primer is synthesized to initiate 5' extension of the template, and the other primer, to initiate 3' extension of the template. The initial primers may be designed using OLIGO 4.06 software (National Biosciences, Inc. (National Biosciences), Plymouth MN), or another appropriate program, to be about 22 to 30 nucleotides in length, to have a GC content of about 50% or more, and to anneal to the target sequence at temperatures of about 68°C to about 72°C. Any stretch of nucleotides which would result in hairpin structures and primer-primer dimerizations are avoided. Selected human cDNA libraries are used to extend the sequence. If more than one extension is necessary or desired, additional or nested sets of primers are designed.

High fidelity amplification is obtained by PCR using methods well known in the art. PCR is performed in 96-well plates using the PTC-200 thermal cycler (MJ Research). The reaction mix contains DNA template, 200 nmol of each primer, reaction buffer containing Mg<sup>2+</sup>, (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, and ß-mercaptoethanol, Taq DNA polymerase (Amersham Pharmacia Biotech), ELONGASE enzyme (Life Technologies), and Pfu DNA polymerase (Stratagene), with the following parameters for primer pair

PCI A and PCI B: Step 1: 94°C, 3 min; Step 2: 94°C, 15 sec; Step 3: 60°C, 1 min; Step 4: 68°C, 2 min; Step 5: Steps 2, 3, and 4 repeated 20 times; Step 6: 68°C, 5 min; Step 7: storage at 4°C. In the alternative, the parameters for primer pair T7 and SK+ are as follows: Step 1: 94°C, 3 min; Step 2: 94°C, 15 sec; Step 3: 57°C, 1 min; Step 4: 68°C, 2 min; Step 5: Steps 2, 3, and 4 repeated 20 times; Step 6: 68°C, 5 min; Step 7: storage at 4°C.

The concentration of DNA in each well is determined by dispensing 100  $\mu$ l PICOGREEN quantitation reagent (0.25% (v/v); Molecular Probes) dissolved in 1X Tris-EDTA (TE) and 0.5  $\mu$ l of undiluted PCR product into each well of an opaque fluorimeter plate (Corning Incorporated (Corning), Corning NY), allowing the DNA to bind to the reagent. The plate is scanned in a FLUOROSKAN II (Labsystems Oy) to measure the fluorescence of the sample and to quantify the concentration of DNA. A 5  $\mu$ l to 10  $\mu$ l aliquot of the reaction mixture is analyzed by electrophoresis on a 1% agarose mini-gel to determine which reactions are successful in extending the sequence.

The extended nucleotides are desalted and concentrated, transferred to 384-well plates, digested with CviJI cholera virus endonuclease (Molecular Biology Research, Madison WI), and sonicated or sheared prior to religation into pUC 18 vector (Amersham Pharmacia Biotech). For shotgun sequencing, the digested nucleotides are separated on low concentration (0.6 to 0.8%) agarose gels, fragments are excised, and agar digested with AGAR ACE (Promega). Extended clones are religated using T4 ligase (New England Biolabs, Inc., Beverly MA) into pUC 18 vector (Amersham Pharmacia Biotech), treated with Pfu DNA polymerase (Stratagene) to fill-in restriction site overhangs, and transfected into competent <u>E. coli</u> cells. Transformed cells are selected on antibiotic-containing media, individual colonies are picked and cultured overnight at 37°C in 384-well plates in LB/2x carbenicillin liquid media.

The cells are lysed, and DNA is amplified by PCR using Taq DNA polymerase (Amersham Pharmacia Biotech) and Pfu DNA polymerase (Stratagene) with the following parameters: Step 1: 94°C, 3 min; Step 2: 94°C, 15 sec; Step 3: 60°C, 1 min; Step 4: 72°C, 2 min; Step 5: steps 2, 3, and 4 repeated 29 times; Step 6: 72°C, 5 min; Step 7: storage at 4°C. DNA is quantified by PICOGREEN reagent (Molecular Probes) as described above. Samples with low DNA recoveries are reamplified using the same conditions as described above. Samples are diluted with 20% dimethysulfoxide (1:2, v/v), and sequenced using DYENAMIC energy transfer sequencing primers and the DYENAMIC DIRECT kit (Amersham Pharmacia Biotech) or the ABI PRISM BIGDYE Terminator cycle sequencing ready reaction kit (Applied Biosystems).

In like manner, the sptm is used to obtain regulatory sequences (promoters, introns, and enhancers) using the procedure above, oligonucleotides designed for such extension, and an appropriate genomic library.

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#### IX. Labeling of Probes and Southern Hybridization Analyses

Hybridization probes derived from the sptm of the Sequence Listing are employed for screening cDNAs, mRNAs, or genomic DNA. The labeling of probe nucleotides between 100 and 1000 nucleotides in length is specifically described, but essentially the same procedure may be used with larger cDNA fragments. Probe sequences are labeled at room temperature for 30 minutes using a T4 polynucleotide kinase,  $\gamma^{32}$ P-ATP, and 0.5X One-Phor-All Plus (Amersham Pharmacia Biotech) buffer and purified using a ProbeQuant G-50 Microcolumn (Amersham Pharmacia Biotech). The probe mixture is diluted to  $10^7$  dpm/ $\mu$ g/ml hybridization buffer and used in a typical membrane-based hybridization analysis.

The DNA is digested with a restriction endonuclease such as Eco RV and is electrophoresed through a 0.7% agarose gel. The DNA fragments are transferred from the agarose to nylon membrane (NYTRAN Plus, Schleicher & Schuell, Inc., Keene NH) using procedures specified by the manufacturer of the membrane. Prehybridization is carried out for three or more hours at 68°C, and hybridization is carried out overnight at 68°C. To remove non-specific signals, blots are sequentially washed at room temperature under increasingly stringent conditions, up to 0.1x saline sodium citrate (SSC) and 0.5% sodium dodecyl sulfate. After the blots are placed in a PHOSPHORIMAGER cassette (Molecular Dynamics) or are exposed to autoradiography film, hybridization patterns of standard and experimental lanes are compared. Essentially the same procedure is employed when screening RNA.

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#### X. Chromosome Mapping of sptm

The cDNA sequences which were used to assemble SEQ ID NO:1-567 are compared with sequences from the Incyte LIFESEQ database and public domain databases using BLAST and other implementations of the Smith-Waterman algorithm. Sequences from these databases that match SEQ ID NO:1-567 are assembled into clusters of contiguous and overlapping sequences using assembly algorithms such as PHRAP (Table 6). Radiation hybrid and genetic mapping data available from public resources such as the Stanford Human Genome Center (SHGC), Whitehead Institute for Genome Research (WIGR), and Généthon are used to determine if any of the clustered sequences have been previously mapped. Inclusion of a mapped sequence in a cluster will result in the assignment of all sequences of that cluster, including its particular SEQ ID NO:, to that map location. The genetic map locations of SEQ ID NO:1-567 are described as ranges, or intervals, of human chromosomes. The map position of an interval, in centiMorgans, is measured relative to the terminus of the chromosome's p-arm. (The centiMorgan (cM) is a unit of measurement based on recombination frequencies between chromosomal markers. On average, 1 cM is roughly equivalent to 1 megabase (Mb) of DNA in humans, although this can vary widely due to hot and cold spots of

recombination.) The cM distances are based on genetic markers mapped by Généthon which provide boundaries for radiation hybrid markers whose sequences were included in each of the clusters.

# XI. Microarray Analysis

#### 5 Probe Preparation from Tissue or Cell Samples

Total RNA is isolated from tissue samples using the guanidinium thiocyanate method and polyA+ RNA is purified using the oligo (dT) cellulose method. Each polyA+ RNA sample is reverse transcribed using MMLV reverse-transcriptase, 0.05 pg/µl oligo-dT primer (21mer), 1X first strand buffer, 0.03 units/µ1 RNase inhibitor, 500 µM dATP, 500 µM dGTP, 500 µM dTTP, 40 µM dCTP, 40 µM dCTP-Cy3 (BDS) or dCTP-Cy5 (Amersham Pharmacia Biotech). The reverse transcription reaction is performed in a 25 ml volume containing 200 ng polyA+RNA with GEMBRIGHT kits (Incyte). Specific control polyA+ RNAs are synthesized by in vitro transcription from non-coding yeast genomic DNA (W. Lei, unpublished). As quantitative controls, the control mRNAs at 0.002 ng, 0.02 ng, 0.2 ng, and 2 ng are diluted into reverse transcription reaction at ratios of 1:100,000, 1:10,000, 1:1000, 1:100 (w/w) to sample mRNA respectively. The control mRNAs are diluted into reverse transcription reaction at ratios of 1:3, 3:1, 1:10, 10:1, 1:25, 25:1 (w/w) to sample mRNA differential expression patterns. After incubation at 37°C for 2 hr, each reaction sample (one with Cy3 and another with Cy5 labeling) is treated with 2.5 ml of 0.5M sodium hydroxide and incubated for 20 minutes at 85°C to the stop the reaction and degrade the RNA. Probes are purified using two successive CHROMA SPIN 30 gel filtration spin columns (CLONTECH Laboratories, Inc. (CLONTECH), Palo Alto CA) and after combining, both reaction samples are ethanol precipitated using 1 ml of glycogen (1 mg/ml), 60 ml sodium acetate, and 300 ml of 100% ethanol. The probe is then dried to completion using a SpeedVAC (Savant Instruments Inc., Holbrook NY) and resuspended in 14  $\mu$ l 5X SSC/0.2% SDS.

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### **Microarray Preparation**

Sequences of the present invention are used to generate array elements. Each array element is amplified from bacterial cells containing vectors with cloned cDNA inserts. PCR amplification uses primers complementary to the vector sequences flanking the cDNA insert. Array elements are amplified in thirty cycles of PCR from an initial quantity of 1-2 ng to a final quantity greater than 5  $\mu$ g. Amplified array elements are then purified using SEPHACRYL-400 (Amersham Pharmacia Biotech).

Purified array elements are immobilized on polymer-coated glass slides. Glass microscope slides (Corning) are cleaned by ultrasound in 0.1% SDS and acetone, with extensive distilled water washes between and after treatments. Glass slides are etched in 4% hydrofluoric acid (VWR Scientific Products Corporation (VWR), West Chester, PA), washed extensively in distilled water, and

coated with 0.05% aminopropyl silane (Sigma) in 95% ethanol. Coated slides are cured in a 110°C oven

Array elements are applied to the coated glass substrate using a procedure described in US Patent No. 5,807,522, incorporated herein by reference. 1  $\mu$ l of the array element DNA, at an average concentration of 100 ng/ $\mu$ l, is loaded into the open capillary printing element by a high-speed robotic apparatus. The apparatus then deposits about 5 nl of array element sample per slide.

Microarrays are UV-crosslinked using a STRATALINKER UV-crosslinker (Stratagene). Microarrays are washed at room temperature once in 0.2% SDS and three times in distilled water. Non-specific binding sites are blocked by incubation of microarrays in 0.2% casein in phosphate buffered saline (PBS) (Tropix, Inc., Bedford, MA) for 30 minutes at 60°C followed by washes in 0.2% SDS and distilled water as before.

#### Hybridization

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Hybridization reactions contain 9  $\mu$ l of probe mixture consisting of 0.2  $\mu$ g each of Cy3 and Cy5 labeled cDNA synthesis products in 5X SSC, 0.2% SDS hybridization buffer. The probe mixture is heated to 65°C for 5 minutes and is aliquoted onto the microarray surface and covered with an 1.8 cm² coverslip. The arrays are transferred to a waterproof chamber having a cavity just slightly larger than a microscope slide. The chamber is kept at 100% humidity internally by the addition of 140  $\mu$ l of 5x SSC in a corner of the chamber. The chamber containing the arrays is incubated for about 6.5 hours at 60°C. The arrays are washed for 10 min at 45°C in a first wash buffer (1X SSC, 0.1% SDS), three times for 10 minutes each at 45°C in a second wash buffer (0.1X SSC), and dried.

#### Detection

Reporter-labeled hybridization complexes are detected with a microscope equipped with an Innova 70 mixed gas 10 W laser (Coherent, Inc., Santa Clara CA) capable of generating spectral lines at 488 nm for excitation of Cy3 and at 632 nm for excitation of Cy5. The excitation laser light is focused on the array using a 20X microscope objective (Nikon, Inc., Melville NY). The slide containing the array is placed on a computer-controlled X-Y stage on the microscope and raster-scanned past the objective. The 1.8 cm x 1.8 cm array used in the present example is scanned with a resolution of 20 micrometers.

In two separate scans, a mixed gas multiline laser excites the two fluorophores sequentially. Emitted light is split, based on wavelength, into two photomultiplier tube detectors (PMT R1477, Hamamatsu Photonics Systems, Bridgewater NJ) corresponding to the two fluorophores. Appropriate filters positioned between the array and the photomultiplier tubes are used to filter the signals. The emission maxima of the fluorophores used are 565 nm for Cy3 and 650 nm for Cy5. Each array is

typically scanned twice, one scan per fluorophore using the appropriate filters at the laser source, although the apparatus is capable of recording the spectra from both fluorophores simultaneously.

The sensitivity of the scans is typically calibrated using the signal intensity generated by a cDNA control species added to the probe mix at a known concentration. A specific location on the array contains a complementary DNA sequence, allowing the intensity of the signal at that location to be correlated with a weight ratio of hybridizing species of 1:100,000. When two probes from different sources (e.g., representing test and control cells), each labeled with a different fluorophore, are hybridized to a single array for the purpose of identifying genes that are differentially expressed, the calibration is done by labeling samples of the calibrating cDNA with the two fluorophores and adding identical amounts of each to the hybridization mixture.

The output of the photomultiplier tube is digitized using a 12-bit RTI-835H analog-to-digital (A/D) conversion board (Analog Devices, Inc., Norwood, MA) installed in an IBM-compatible PC computer. The digitized data are displayed as an image where the signal intensity is mapped using a linear 20-color transformation to a pseudocolor scale ranging from blue (low signal) to red (high signal). The data is also analyzed quantitatively. Where two different fluorophores are excited and measured simultaneously, the data are first corrected for optical crosstalk (due to overlapping emission spectra) between the fluorophores using each fluorophore's emission spectrum.

A grid is superimposed over the fluorescence signal image such that the signal from each spot is centered in each element of the grid. The fluorescence signal within each element is then integrated to obtain a numerical value corresponding to the average intensity of the signal. The software used for signal analysis is the GEMTOOLS gene expression analysis program (Incyte).

## XII. Complementary Nucleic Acids

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Sequences complementary to the sptm are used to detect, decrease, or inhibit expression of the naturally occurring nucleotide. The use of oligonucleotides comprising from about 15 to 30 base pairs is typical in the art. However, smaller or larger sequence fragments can also be used. Appropriate oligonucleotides are designed from the sptm using OLIGO 4.06 software (National Biosciences) or other appropriate programs and are synthesized using methods standard in the art or ordered from a commercial supplier. To inhibit transcription, a complementary oligonucleotide is designed from the most unique 5' sequence and used to prevent transcription factor binding to the promoter sequence. To inhibit translation, a complementary oligonucleotide is designed to prevent ribosomal binding and processing of the transcript.

#### XIII. Expression of SPTM

Expression and purification of SPTM is accomplished using bacterial or virus-based

expression systems. For expression of SPTM in bacteria, cDNA is subcloned into an appropriate vector containing an antibiotic resistance gene and an inducible promoter that directs high levels of cDNA transcription. Examples of such promoters include, but are not limited to, the trp-lac (tac) hybrid promoter and the T5 or T7 bacteriophage promoter in conjunction with the lac operator regulatory element. Recombinant vectors are transformed into suitable bacterial hosts, e.g., BL21(DE3). Antibiotic resistant bacteria express SPTM upon induction with isopropyl beta-D-thiogalactopyranoside (IPTG). Expression of SPTM in eukaryotic cells is achieved by infecting insect or mammalian cell lines with recombinant Autographica californica nuclear polyhedrosis virus (AcMNPV), commonly known as baculovirus. The nonessential polyhedrin gene of baculovirus is replaced with cDNA encoding SPTM by either homologous recombination or bacterial-mediated transposition involving transfer plasmid intermediates. Viral infectivity is maintained and the strong polyhedrin promoter drives high levels of cDNA transcription. Recombinant baculovirus is used to infect Spodoptera frugiperda (Sf9) insect cells in most cases, or human hepatocytes, in some cases. Infection of the latter requires additional genetic modifications to baculovirus. (See e.g., Engelhard, supra; and Sandig, supra.)

In most expression systems, SPTM is synthesized as a fusion protein with, e.g., glutathione S-transferase (GST) or a peptide epitope tag, such as FLAG or 6-His, permitting rapid, single-step, affinity-based purification of recombinant fusion protein from crude cell lysates. GST, a 26-kilodalton enzyme from Schistosoma japonicum, enables the purification of fusion proteins on immobilized glutathione under conditions that maintain protein activity and antigenicity (Amersham Pharmacia Biotech). Following purification, the GST moiety can be proteolytically cleaved from SPTM at specifically engineered sites. FLAG, an 8-amino acid peptide, enables immuno affinity purification using commercially available monoclonal and polyclonal anti-FLAG antibodies (Eastman Kodak Company, Rochester NY). 6-His, a stretch of six consecutive histidine residues, enables purification on metal-chelate resins (QIAGEN). Methods for protein expression and purification are discussed in Ausubel (1995, supra, Chapters 10 and 16). Purified SPTM obtained by these methods can be used directly in the following activity assay.

#### XIV. Demonstration of SPTM Activity

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An assay for SPTM activity measures the expression of SPTM on the cell surface. cDNA encoding SPTM is subcloned into an appropriate mammalian expression vector suitable for high levels of cDNA expression. The resulting construct is transfected into a nonhuman cell line such as NIH3T3. Cell surface proteins are labeled with biotin using methods known in the art. Immunoprecipitations are performed using SPTM-specific antibodies, and immunoprecipitated samples are analyzed using SDS-PAGE and immunoblotting techniques. The ratio of labeled

immunoprecipitant to unlabeled immunoprecipitant is proportional to the amount of SPTM expressed on the cell surface.

Alternatively, an assay for SPTM activity measures the amount of SPTM in secretory, membrane-bound organelles. Transfected cells as described above are harvested and lysed. The lysate is fractionated using methods known to those of skill in the art, for example, sucrose gradient ultracentrifugation. Such methods allow the isolation of subcellular components such as the Golgi apparatus, ER, small membrane-bound vesicles, and other secretory organelles. Immunoprecipitations from fractionated and total cell lysates are performed using SPTM-specific antibodies, and immunoprecipitated samples are analyzed using SDS-PAGE and immunoblotting techniques. The concentration of SPTM in secretory organelles relative to SPTM in total cell lysate is proportional to the amount of SPTM in transit through the secretory pathway.

#### XV. Functional Assays

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SPTM function is assessed by expressing sptm at physiologically elevated levels in mammalian cell culture systems. cDNA is subcloned into a mammalian expression vector containing a strong promoter that drives high levels of cDNA expression. Vectors of choice include pCMV SPORT (Life Technologies) and pCR3.1 (Invitrogen Corporation, Carlsbad CA), both of which contain the cytomegalovirus promoter. 5-10  $\mu$ g of recombinant vector are transiently transfected into a human cell line, preferably of endothelial or hematopoietic origin, using either liposome formulations or electroporation. 1-2  $\mu$ g of an additional plasmid containing sequences encoding a marker protein are co-transfected.

Expression of a marker protein provides a means to distinguish transfected cells from nontransfected cells and is a reliable predictor of cDNA expression from the recombinant vector. Marker proteins of choice include, e.g., Green Fluorescent Protein (GFP; CLONTECH), CD64, or a CD64-GFP fusion protein. Flow cytometry (FCM), an automated laser optics-based technique, is used to identify transfected cells expressing GFP or CD64-GFP and to evaluate the apoptotic state of the cells and other cellular properties.

FCM detects and quantifies the uptake of fluorescent molecules that diagnose events preceding or coincident with cell death. These events include changes in nuclear DNA content as measured by staining of DNA with propidium iodide; changes in cell size and granularity as measured by forward light scatter and 90 degree side light scatter; down-regulation of DNA synthesis as measured by decrease in bromodeoxyuridine uptake; alterations in expression of cell surface and intracellular proteins as measured by reactivity with specific antibodies; and alterations in plasma membrane composition as measured by the binding of fluorescein-conjugated Annexin V protein to the cell surface. Methods in flow cytometry are discussed in Ormerod, M. G. (1994) Flow Cytometry,

Oxford, New York NY.

The influence of SPTM on gene expression can be assessed using highly purified populations of cells transfected with sequences encoding SPTM and either CD64 or CD64-GFP. CD64 and CD64-GFP are expressed on the surface of transfected cells and bind to conserved regions of human immunoglobulin G (IgG). Transfected cells are efficiently separated from nontransfected cells using magnetic beads coated with either human IgG or antibody against CD64 (DYNAL, Inc., Lake Success NY). mRNA can be purified from the cells using methods well known by those of skill in the art. Expression of mRNA encoding SPTM and other genes of interest can be analyzed by northern analysis or microarray techniques.

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#### XVI. Production of Antibodies

SPTM substantially purified using polyacrylamide gel electrophoresis (PAGE; see, e.g., Harrington, M.G. (1990) Methods Enzymol. 182:488-495), or other purification techniques, can be used to immunize rabbits and to produce antibodies using standard protocols.

Alternatively, the SPTM amino acid sequence is analyzed using LASERGENE software (DNASTAR) to determine regions of high immunogenicity, and a corresponding peptide is synthesized and used to raise antibodies by means known to those of skill in the art. Methods for selection of appropriate epitopes, such as those near the C-terminus or in hydrophilic regions are well described in the art. (See, e.g., Ausubel, 1995, supra, Chapter 11.)

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Typically, peptides 15 residues in length are synthesized using an ABI 431A peptide synthesizer (Applied Biosystems) using fmoc-chemistry and coupled to KLH (Sigma) by reaction with N-maleimidobenzoyl-N-hydroxysuccinimide ester (MBS) to increase immunogenicity. (See, e.g., Ausubel, <a href="mailto:supra">supra</a>.) Rabbits are immunized with the peptide-KLH complex in complete Freund's adjuvant. Resulting antisera are tested for antipeptide activity by, for example, binding the peptide to plastic, blocking with 1% BSA, reacting with rabbit antisera, washing, and reacting with radio-iodinated goat anti-rabbit IgG. Antisera with antipeptide activity are tested for anti-SPTM activity using protocols well known in the art, including ELISA, RIA, and immunoblotting.

#### XVII. Purification of Naturally Occurring SPTM Using Specific Antibodies

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Naturally occurring or recombinant SPTM is substantially purified by immunoaffinity chromatography using antibodies specific for SPTM. An immunoaffinity column is constructed by covalently coupling anti-SPTM antibody to an activated chromatographic resin, such as CNBr-activated SEPHAROSE (Amersham Pharmacia Biotech). After the coupling, the resin is blocked and washed according to the manufacturer's instructions.

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Media containing SPTM are passed over the immunoaffinity column, and the column is

washed under conditions that allow the preferential absorbance of SPTM (e.g., high ionic strength buffers in the presence of detergent). The column is eluted under conditions that disrupt antibody/SPTM binding (e.g., a buffer of pH 2 to pH 3, or a high concentration of a chaotrope, such as urea or thiocyanate ion), and SPTM is collected.

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#### XVIII. Identification of Molecules Which Interact with SPTM

SPTM, or biologically active fragments thereof, are labeled with <sup>125</sup>I Bolton-Hunter reagent. (See, e.g., Bolton, A.E. and W.M. Hunter (1973) Biochem. J. 133:529-539.) Candidate molecules previously arrayed in the wells of a multi-well plate are incubated with the labeled SPTM, washed, and any wells with labeled SPTM complex are assayed. Data obtained using different concentrations of SPTM are used to calculate values for the number, affinity, and association of SPTM with the candidate molecules.

Alternatively, molecules interacting with SPTM are analyzed using the yeast two-hybrid system as described in Fields, S. and O. Song (1989) Nature 340:245-246, or using commercially available kits based on the two-hybrid system, such as the MATCHMAKER system (CLONTECH).

SPTM may also be used in the PATHCALLING process (CuraGen Corp., New Haven CT) which employs the yeast two-hybrid system in a high-throughput manner to determine all interactions between the proteins encoded by two large libraries of genes (Nandabalan, K. et al. (2000) U.S. Patent No. 6,057,101).

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All publications and patents mentioned in the above specification are herein incorporated by reference. Various modifications and variations of the described method and system of the invention will be apparent to those skilled in the art without departing from the scope and spirit of the invention. Although the invention has been described in connection with specific embodiments, it should be understood that the invention as claimed should not be unduly limited to such specific embodiments. Indeed, various modifications of the above-described modes for carrying out the invention which are obvious to those skilled in the field of molecular biology or related fields are intended to be within the scope of the following claims.

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PCT/US02/09921 WO 02/083876

	17	IDEE .	
SEQ ID NO:	Template ID	SEQ ID NO:	ORF ID
1	LG:1041015.22:2001MAR30	568	LG:1041015.22.orf1:2001MAR30
2	LG:106877.10:2001MAR30	569	LG:106877.10.orf3:2001MAR30
3	LG:1138554.16:2001MAR30	570	LG:1138554.16.orf2:2001MAR30
4	LG:1383277.7:2001MAR30	571	LG:1383277.7.orf3:2001MAR30
5	LG:1397614.15:2001MAR30	572	LG:1397614.15.orf1:2001MAR30
6	LG:1399315.8:2001MAR30	. 573	LG:1399315.8.orf1:2001MAR30
7	LG:198782.1:2001MAR30	574	LG:198782.1.orf2a:2001MAR30
7	LG:198782.1:2001MAR30	575	LG:198782.1.orf2b:2001MAR30
7	LG:198782.1:2001MAR30	576	LG:198782.1.orf3:2001MAR30
8	LG:236046.1:2001MAR30	577	LG:236046.1.orf2:2001MAR30
9	LG:332122.6:2001MAR30	578	LG:332122.6.orf3:2001MAR30
10	LG:345320.16:2001MAR30	579	LG:345320.16.orf1:2001MAR30
11	LG:350827.10:2001MAR30	580	LG:350827.10.orf3:2001MAR30
12	LG:399901.5:2001MAR30	581	LG:399901.5.orf3:2001MAR30
13	LG:404563.1:2001MAR30	582	LG:404563.1.orf2:2001MAR30
14	LG:977812.15:2001MAR30	583	LG:977812.15.orf2:2001MAR30
15	LG:983810.1:2001MAR30	584	LG:983810.1.orf1:2001MAR30
16	LG:984488.1:2001MAR30	585	LG:984488.1.orf1:2001MAR30
17	LG:011606.1:2001MAR30	586	LG:011606.1.orf1:2001MAR30
18	LG:025465.5:2001MAR30	587	LG:025465.5.orf1:2001MAR30
19	LG:025724.10:2001MAR30	588	LG:025724.10.orf3:2001MAR30
20	LG:1095426.1:2001MAR30	589	LG:1095426.1.orf3:2001MAR30
21	LG:1132418.1:2001MAR30	590	LG:1132418.1.orf2:2001MAR30
22	LG:1377900.14:2001MAR30	591	LG:1377900.14.orf3:2001MAR30
23	LG:1383812.1:2001MAR30	592	LG:1383812.1.orf2:2001MAR30
24	LG:1468687.1:2001MAR30	593 ·	LG:1468687.1.orf3:2001MAR30
25	LG:1505513.1:2001MAR30	594	LG:1505513.1.orf1:2001MAR30
26	LG:178823.9:2001MAR30	595	LG:178823.9.orf2:2001MAR30
27	LG:198342.3:2001MAR30	596	LG:198342.3.orf3:2001MAR30
28	LG:210672.1:2001MAR30	597	LG:210672.1.orf1:2001MAR30
29	LG:212823.8:2001MAR30	598	LG:212823.8.orf1:2001MAR30
30	LG:220495.9:2001MAR30	599	LG:220495.9.orf2:2001MAR30
31	LG:238262.1:2001MAR30	600	LG:238262.1.orf3:2001MAR30
32	LG:239410.21:2001MAR30	601	LG:239410.21.orf2:2001MAR30
33	LG:245854.7:2001MAR30	602	LG:245854.7.orf3:2001MAR30
34	LG:294697.1:2001MAR30	603	LG:294697.1.orf3:2001MAR30
35	LG:345884.1:2001MAR30	604	LG:345884.1.orf1:2001MAR30
36	LG:400095.15:2001MAR30	605	LG:400095.15.orf1:2001MAR30
37	LG:402180.1:2001MAR30	606	LG:402180.1.orf3:2001MAR30
38	LG:403401.1:2001MAR30	607	LG:403401.1.orf3:2001MAR30
39	LG:411327.29:2001MAR30	608	LG:411327.29.orf1:2001MAR30
40	LG:417464.10:2001MAR30	609	LG:417464.10.orf2:2001MAR30
41	LG:481997.1:2001MAR30	610	LG:481997.1.orf1:2001MAR30
42	LG:979304.7:2001MAR30	611	LG:979304.7.orf3:2001MAR30
43	LG:997964.1:2001MAR30	612	LG:997964.1.orf3:2001MAR30
44	LG:998845.1:2001MAR30	613	LG:998845.1.orf2:2001MAR30
45	LG:000014.1:2001MAR30	614	LG:000014.1.orf1:2001MAR30
46	LG:000290.9:2001MAR30	615	LG:000290.9.orf1:2001MAR30
47 47	LG:001923.1:2001MAR30 LG:001923.1:2001MAR30	616	LG:001923.1.orf3a:2001MAR30
47 49		617	LG:001923.1.orf3b:2001MAR30 LG:008606.21.orf3:2001MAR30
48	LG:008606.21:2001MAR30	618	
49 50	LG:009699.32:2001MAR30	619 620	LG:009699.32.orf3:2001MAR30 LG:016723.6.orf1:2001MAR30
50	LG:016723.6:2001MAR30 LG:017126.5:2001MAR30		LG:017126.5.orf2:2001MAR30
51	EG.01/120.3;2001WAR30	621 66	FO:01 \ 150.5.0115.5001MWX90 \

	. 17	ADLL I	
SEQ ID NO:	Template ID	SEQ ID NO:	ORF ID
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53	LG:022183.1:2001MAR30	623	LG:022183.1.orf2:2001MAR30
54	LG:028493.1:2001MAR30	624	LG:028493.1.orf3:2001MAR30
55	LG:034197.1:2001MAR30	625	LG:034197.1.orf2:2001MAR30
56	LG:054096.31:2001MAR30	626	LG:054096.31.orf1:2001MAR30
57	LG:054807.3:2001MAR30	627	LG:054807.3.orf2:2001MAR30
58	LG:065873.12:2001MAR30	628	LG:065873.12.orf2:2001MAR30
59	LG:083814.6:2001MAR30	629	LG:083814.6.orf1:2001MAR30
59	LG:083814.6:2001MAR30	630	LG:083814.6.orf2:2001MAR30
60	LG:093477.1:2001MAR30	631	LG:093477.1.orf3:2001MAR30
61	LG:099572.12:2001MAR30	632	LG:099572.12.orf1:2001MAR30
62	LG:100396.31:2001MAR30	633	LG:100396.31.orf3:2001MAR30
63	LG:1026903.5:2001MAR30	634	LG:1026903.5.orf2:2001MAR30
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64	LG:1060168.6:2001MAR30	636	LG:1060168.6.orf1:2001MAR30
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68	LG:1091941.41:2001MAR30	640	LG:1091941.41.orf3:2001MAR30
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70	LG:1094187.33:2001MAR30	642	LG:1094187.33.orf3:2001MAR30
71	LG:1098692.18:2001MAR30	643	LG:1098692.18.orf2:2001MAR30
72	LG:1173104.22:2001MAR30	644	LG:1173104.22.orf3:2001MAR30
73	LG:1215335.7:2001MAR30	645	LG:1215335.7.orf1:2001MAR30
74	LG:1256753.1:2001MAR30	646	LG:1256753.1.orf2:2001MAR30
75	LG:1326702.10:2001MAR30	647	LG:1326702.10.orf2:2001MAR30
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· 77	LG:1327867.15:2001MAR30	649	LG:1327867.15.orf2:2001MAR30
78	LG:1383232.1:2001MAR30	650	LG:1383232.1.orf1:2001MAR30
79	LG:1383368.40:2001MAR30	651	LG:1383368.40.orf2:2001MAR30
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106	LG:200727.6:2001MAR30	679	LG:200727.6.orf2:2001MAR30
107	LG:201572.20:2001MAR30	680	LG:201572.20.orf1:2001MAR30
108	LG:201669.25:2001MAR30	681	LG:201669.25.orf3:2001MAR30
109	LG:208588.4:2001MAR30	682	LG:208588.4.orf1:2001MAR30
110	LG:210412.29:2001MAR30	683	LG:210412.29.orf1:2001MAR30
111	LG:215051.15:2001MAR30	684	LG:215051.15.orf1:2001MAR30
112	LG:215475.21:2001MAR30	685	LG:215475.21.orf1:2001MAR30
113	LG:224523.1:2001MAR30	686	LG:224523.1.orf1:2001MAR30
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115	LG:233138.2:2001MAR30	688	LG:233138.2.orf2:2001MAR30
116	LG:234811.10:2001MAR30	689	LG:234811.10.orf2:2001MAR30
117	LG:236092.1:2001MAR30	690	LG:236092.1.orf2:2001MAR30
118	LG:236098.12:2001MAR30	691	LG:236098.12.orf1:2001MAR30
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120	LG:237503.21:2001MAR30	693	LG:237503.21.orf3:2001MAR30
121	LG:238023.7:2001MAR30	694	LG:238023.7.orf2:2001MAR30
122	LG:238209.1:2001MAR30	695	LG:238209.1.orf2:2001MAR30
123	LG:238456.10:2001MAR30	696	LG:238456.10.orf3:2001MAR30
124	LG:239245.1:2001MAR30	697	LG:239245.1.orf3:2001MAR30
125	LG:239579.8:2001MAR30	698	LG:239579.8.orf3:2001MAR30
126	LG:239601.22:2001MAR30	699	LG:239601.22.orf1:2001MAR30
126	LG:239601.22:2001MAR30	700	LG:239601.22.orf3:2001MAR30
127	LG:240121.1:2001MAR30	701	LG:240121.1.orf3:2001MAR30
128	LG:241110.2:2001MAR30	702	LG:241110.2.orf3:2001MAR30
129	LG:244948.4:2001MAR30	703	LG:244948.4.orf3:2001MAR30
130	LG:245378.6:2001MAR30	704	LG:245378.6.orf3:2001MAR30
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133	LG:267153.16:2001MAR30	707	LG:267153.16.orf2:2001MAR30
134	LG:291759.5:2001MAR30	708	LG:291759.5.orf2:2001MAR30
135	LG:298102.1:2001MAR30	709	LG:298102.1.orf1:2001MAR30
136	LG:308891.1:2001MAR30	710	LG:308891.1.orf2:2001MAR30
137	LG:312668.4:2001MAR30	711	LG:312668.4.orf1:2001MAR30
138	LG:331642.6:2001MAR30	712	LG:331642.6.orf2:2001MAR30
139	LG:331851.12:2001MAR30	713	LG:331851.12.orf3:2001MAR30
140	LG:332414.5:2001MAR30	714	LG:332414.5.orf2:2001MAR30
141	LG:332730.12:2001MAR30	715	LG:332730.12.orf2:2001MAR30
142	LG:333062.22:2001MAR30	716	LG:333062.22.orf2:2001MAR30
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144	LG:337930.16:2001MAR30	718	LG:337930.16.orf2:2001MAR30
145	LG:346481.15:2001MAR30	719	LG:346481.15.orf1:2001MAR30
146	LG:349164.1:2001MAR30	720	.LG:349164.1.orf3:2001MAR30
147	LG:350957.5:2001MAR30	721	LG:350957.5.orf1:2001MAR30
148	LG:383512.8:2001MAR30	722	LG:383512.8.orf1:2001MAR30
149	LG:401163.10:2001MAR30	723	LG:401163.10.orf1:2001MAR30
150	LG:402133.1:2001MAR30	724	LG:402133.1.orf1:2001MAR30
151	LG:405820.1:2001MAR30	725	LG:405820.1.orf2:2001MAR30
152	LG:405846.1:2001MAR30	726	LG:405846.1.orf3:2001MAR30
153	LG:407401.2:2001MAR30	727	LG:407401.2.orf2:2001MAR30
154	LG:408448.10:2001MAR30	728	LG:408448.10.orf3:2001MAR30
155	LG:408854.13:2001MAR30	729	LG:408854.13.orf2:2001MAR30
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160	LG:428206.7:2001MAR30	734	LG:428206.7.orf2:2001MAR30
161	LG:430059.1:2001MAR30	735	LG:430059.1.orf3:2001MAR30
162	LG:448040.3:2001MAR30	736	LG:448040.3.orf2:2001MAR30
163	LG:451274.1:2001MAR30	737	LG:451274.1.orf3:2001MAR30
164	LG:456110.1:2001MAR30	738	LG:456110.1.orf1:2001MAR30
165	LG:456954.1:2001MAR30	739	LG:456954.1.orf3:2001MAR30
166	LG:474942.12:2001MAR30	740	LG:474942.12.orf3:2001MAR30
167	LG:475119.14:2001MAR30	741	LG:475119.14.orf1:2001MAR30
168	LG:479908.77:2001MAR30	742	LG:479908.77.orf3:2001MAR30
169	LG:480127.47:2001MAR30	743	LG:480127.47.orf3:2001MAR30
170	LG:481154.12:2001MAR30	744	LG:481154.12.orf1:2001MAR30
171	LG:481414.6:2001MAR30	745	LG:481414.6.orf2:2001MAR30
172	LG:481941.1:2001MAR30	746	LG:481941.1.orf3:2001MAR30
173	LG:887216.4:2001MAR30	747	LG:887216.4.orf3:2001MAR30
174	LG:899402.3:2001MAR30	748	LG:899402.3.orf1:2001MAR30
175	LG:899894.2:2001MAR30	749	LG:899894.2.orf3:2001MAR30
176	LG:977908.1:2001MAR30	750	LG:977908.1.orf3:2001MAR30
177	LG:977929.1:2001MAR30	751	LG:977929.1.orf1:2001MAR30
178	LG:978008.14:2001MAR30	752	LG:978008.14.orf3:2001MAR30
179	LG:979054.18:2001MAR30	753	LG:979054.18.orf1:2001MAR30
180	LG:979185.10:2001MAR30	754	LG:979185.10.orf1:2001MAR30
181	LG:983654.1:2001MAR30	755	LG:983654.1.orf2:2001MAR30
182	LG:985092.12:2001MAR30	756	LG:985092.12.orf3:2001MAR30
183	LG:987396.8:2001MAR30	757	LG:987396.8.orf2:2001MAR30
184	LG:987418.10:2001MAR30	758	LG:987418.10.orf2:2001MAR30
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185	LG:997203.25:2001MAR30	760	LG:997203.25.orf3:2001MAR30
186	LG:997477.8:2001MAR30	761	LG:997477.8.orf3:2001MAR30
187	LG:998855.4:2001MAR30	762	LG:998855.4.orf1:2001MAR30
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189	LG:999183.1:2001MAR30	764	LG:999183.1.orf3:2001MAR30
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191	LI:170666.6:2001MAY17	766	LI:170666.6.orf2:2001MAY17
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193	LI:228655.5:2001MAY17	768	LI:228655.5.orf3:2001MAY17
194	LI:229789.6:2001MAY17	769	LI:229789.6.orf3:2001MAY17
195	LI:231500.8:2001MAY17	770	LI:231500.8.orf1:2001MAY17
196	LI:253851.26:2001MAY17	771	LI:253851.26.orf3:2001MAY17
197	LI:373302.1:2001MAY17	772	LI:373302.1.orf1:2001MAY17
198	LI:405707.12:2001MAY17	773	LI:405707.12.orf2:2001MAY17
199	LI:411441.8:2001MAY17	774	LI:411441.8.orf3:2001MAY17
200	LI:758193.3:2001MAY17	775	LI:758193.3.orf2:2001MAY17
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202	LI:104650.7:2001MAY17	777	LI:104650.7.orf3:2001MAY17
203	LI:1094557.4:2001MAY17	778	LI:1094557.4.orf3:2001MAY17
204	LI:1143528.4:2001MAY17	779	LI:1143528.4.orf2:2001MAY17
205	LI:1172210.7:2001MAY17	780	LI:1172210.7.orf2:2001MAY17
206	LI:1178659.14:2001MAY17	781	LI:1178659.14.orf1:2001MAY17
207	LI:1983726.3:2001MAY17	782	LI:1983726.3.orf3:2001MAY17
208	LI:2051495.3:2001MAY17	783	LI:2051495.3.orf2:2001MAY17
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211	LI:2118292.9:2001MAY17	786	LI:2118292.9.orf1:2001MAY17
212	LI:2118733.7:2001MAY17	787	LI:2118733.7.orf1:2001MAY17
213	LI:212702.3:2001MAY17	788	LI:212702.3.orf1:2001MAY17
214	LI:2207871.10:2001MAY17	789	LI:2207871.10.orf2:2001MAY17
215	LI:2207876.5:2001MAY17	790	LI:2207876.5.orf1:2001MAY17
215	LI:2207876.5:2001MAY17	791	LI:2207876.5.orf2:2001MAY17
216	LI:2208743.1:2001MAY17	792	LI:2208743.1.orf3:2001MAY17
217	LI:2208744.1:2001MAY17	793	LI:2208744.1.orf2:2001MAY17
218	LI:230905.3:2001MAY17	794	LI:230905.3.orf2:2001MAY17
219	LI:235233.95:2001MAY17	795	LI:235233.95.orf3:2001MAY17
	· LI:235359.24:2001MAY17	796	LI:235359.24.orf3:2001MAY17
221	LI:238365.6:2001MAY17	797	LI:238365.6.orf2:2001MAY17
222	LI:260259.23:2001MAY17	798	LI:260259.23.orf2:2001MAY17
223	LI:321069.2:2001MAY17	799	LI:321069.2.orf1:2001MAY17
224	LI:331499.8:2001MAY17	800	LI:331499.8.orf1:2001MAY17
225	LI:332176.8:2001MAY17	801	LI:332176.8.orf2:2001MAY17
226	LI:333952.7:2001MAY17	802	LI:333952.7.orf1:2001MAY17
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230	LI:398153.37:2001MAY17	806	LI:398153.37.orf3:2001MAY17
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239	LI:1085250.6:2001MAY17	815	LI:1085250.6.orf1:2001MAY17
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247	LI:020691.1:2001MAY17	823	LI:020691,1.orf1:2001MAY17
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263	LI:1054377.1:2001MAY17	840	LI:1054377.1.orf2:2001MAY17
264	LI:1072074.10:2001MAY17	841	LI:1072074.10.orf2:2001MAY17
265	LI:1072889.15:2001MAY17	842	LI:1072889.15.orf3:2001MAY17
266	LI:1077480.1:2001MAY17	843	LI:1077480.1.orf3:2001MAY17
267	LI:1079555.1:2001MAY17	844	LI:1079555.1.orf2:2001MAY17
268	LI:1084992.28:2001MAY17	845	LI:1084992.28.orf2:2001MAY17
269	LI:1085472.5:2001MAY17	846	LI:1085472.5.orf1:2001MAY17
270	LI:1086800.7:2001MAY17	847	LI:1086800.7.orf2:2001MAY17
271	LI:1089871.9:2001MAY17	848	LI:1089871.9.orf2:2001MAY17
272	LI:110297.6:2001MAY17	849	LI:110297.6.orf2:2001MAY17
273	LI:1143463.8:2001MAY17	850	LI:1143463.8.orf1:2001MAY17
274	LI:1144466.1:2001MAY17	851	LI:1144466.1.orf2:2001MAY17
275	LI:1170624.2:2001MAY17	852	LI:1170624.2.orf2:2001MAY17
276	LI:1171602.39:2001MAY17	853	LI:1171602.39.orf2:2001MAY17
277	LI:1182361.3:2001MAY17	854	LI:1182361.3.orf1:2001MAY17
278	LI:1188194.15:2001MAY17	855	LI:1188194.15.orf1:2001MAY17
279	LI:1189195.7:2001MAY17	856	LI:1189195.7.orf3:2001MAY17
280	LI:1190092.13:2001MAY17	857	LI:1190092.13.orf3:2001MAY17
281	LI:1190318.4:2001MAY17	858	LI:1190318.4.orf2:2001MAY17
282	LI:144233.1:2001MAY17	859	LI:144233.1.orf3:2001MAY17
283	LI:154608.1:2001MAY17	860	LI:154608.1.orf2:2001MAY17
284	LI:170101.1:2001MAY17	861	
285	LI:180043.1:2001MAY17	862	LI:180043.1.orf1:2001MAY17
286	LI:193050.1:2001MAY17	863	LI:193050.1.orf2:2001MAY17
287	LI:197477.31:2001MAY17	864	LI:197477.31.orf1:2001MAY17
288	LI:199639.12:2001MAY17	865	LI:199639.12.orf1:2001MAY17
289	LI:200058.6:2001MAY17	866 :	LI:200058.6.orf3:2001MAY17
290	LI:201374.23:2001MAY17	867	LI:201374.23.orf2:2001MAY17
291	LI:201824.1:2001MAY17	868	LI:201824.1.orf2:2001MAY17
292	LI:201989.11:2001MAY17	869	LI:201989.11.orf2:2001MAY17
293	LI:2035159.1:2001MAY17	870	LI:2035159.1.orf3:2001MAY17
294	LI:204818.10:2001MAY17	871	LI:204818.10.orf1:2001MAY17
295	LI:2048337.1:2001MAY17	872	LI:2048337.1.orf3:2001MAY17
296	LI:2049697.4:2001MAY17	873	LI:2049697.4.orf3:2001MAY17
290 297	LI:2050808.19:2001MAY17	874	LI:2050808.19.orf2:2001MAY17
298	LI:209773.25:2001MAY17	875	LI:209773.25.orf3:2001MAY17
299	LI:2117881.32:2001MAY17	876	LI:2117881.32.orf2:2001MAY17
300	LI:2117881.32.2001MA117	877	LI:2117881:32.012:2001MAY17
301	LI:2118151.15:2001MAY17	878	LI:2118151.15.orf2:2001MAY17
302	LI:2118331.13.2001MAY17	879	LI:2118324.9.orf2:2001MAY17
303	LI:2118368.12:2001MAY17	880	LI:2118368.12.orf2:2001MAY17
304	LI:2119448.5:2001MAY17	881	LI:2119448.5.orf3:2001MAY17
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306 307	LI:2120556.1:2001MAY17	883 884	LI:2120556.1.orf2:2001MAY17
307	LI:2121577.3:2001MAY17		LI:2121577.3.orf3:2001MAY17
308	LI:2123395.11:2001MAY17	885	LI:2123395.11.orf3:2001MAY17
309	LI:2123452.9:2001MAY17	886	LI:2123452.9.orf2:2001MAY17
310	LI:2164109.1:2001MAY17	887	LI:2164109.1.orf3:2001MAY17
311	LI:2168320.1:2001MAY17	888	LI:2168320.1.orf1:2001MAY17
312	LI:2173577.1:2001MAY17	889	LI:2173577.1.orf1:2001MAY17
313	LI:2179256.1:2001MAY17	890	LI:2179256.1.orf1:2001MAY17
314	LI:2180388.1:2001MAY17	891	LI:2180388.1.orf1:2001MAY17

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317	LI:2200761.12:2001MAY17	894	LI:2200761.12.orf2:2001MAY17
318	LI:2203624.1:2001MAY17	895	LI:2203624.1.orf2:2001MAY17
319	LI:220495.9:2001MAY17	896	LI:220495.9.orf2:2001MAY17
320	LI:2205532.1:2001MAY17	897	LI:2205532.1.orf3:2001MAY17
321	LI:2206277.1:2001MAY17	898	LI:2206277.1.orf3:2001MAY17
322	LI:2207765.8:2001MAY17	899 ·	LI:2207765.8.orf3:2001MAY17
323	LI:2208404.4:2001MAY17	900	LI:2208404.4.orf2:2001MAY17
324	LI:2208715.3:2001MAY17	901	LI:2208715.3.orf1:2001MAY17
325	LI:2208766.2:2001MAY17	902	LI:2208766.2.orf3:2001MAY17
326	LI:2209636.3:2001MAY17	903	LI:2209636.3.orf1:2001MAY17
327	LI:221864.68:2001MAY17	904	LI:221864.68.orf1:2001MAY17
328	LI:229267.1:2001MAY17	905	LI:229267.1.orf3:2001MAY17
329	LI:229648.2:2001MAY17	906	LI:229648.2.orf1:2001MAY17
330	LI:231016.1:2001MAY17	907	LI:231016.1.orf3:2001MAY17
331	LI:231140.5:2001MAY17	908	LI:231140.5.orf1:2001MAY17
332	LI:231695.14:2001MAY17	909	LI:231695.14.orf3:2001MAY17
333	LI:232846.24:2001MAY17	910	LI:232846.24.orf3:2001MAY17
334	LI:233411.11:2001MAY17	911	LI:233411.11.orf3:2001MAY17
335	LI:233545.13:2001MAY17	912	LI:233545.13.orf3:2001MAY17
336	LI:234671.101:2001MAY17	913	LI:234671.101.orf3:2001MAY17
337	LI:236098.14:2001MAY17	914	LI:236098.14.orf3:2001MAY17
338	LI:236196.15:2001MAY17	915	LI:236196.15.orf1:2001MAY17
339	LI:237086.1:2001MAY17	916	LI:237086.1.orf2:2001MAY17
340	LI:238585.30:2001MAY17	917 ·	LI:238585.30.orf2:2001MAY17
341	LI:238672.6:2001MAY17	918	LI:238672.6.orf2:2001MAY17
342	LI:239579.9:2001MAY17	919	LI:239579.9.orf2:2001MAY17
343	LI:239720.1:2001MAY17	920 ·	LI:239720.1.orf3:2001MAY17
344 -	LI:240037.6:2001MAY17	921	LI:240037.6.orf2:2001MAY17
345	LI:243900.7:2001MAY17	922	LI:243900.7.orf3:2001MAY17
346	LI:244378.1:2001MAY17	923	LI:244378.1.orf2:2001MAY17
347	LI:245500.3:2001MAY17	924	LI:245500.3.orf1:2001MAY17
348	LI:245982.24:2001MAY17	925	L1:245982.24.orf2:2001MAY17
349	LI:246054.1:2001MAY17	926	LI:246054.1.orf3:2001MAY17
350	LI:256051.229:2001MAY17	927	LI:256051.229.orf3:2001MAY17
351	LI:260629.7:2001MAY17	928	LI:260629.7.orf1:2001MAY17
352	LI:272723.1:2001MAY17	929	LI:272723.1.orf3a:2001MAY17
352	LI:272723.1:2001MAY17	930	LI:272723.1.orf3b:2001MAY17
353	LI:272766.1:2001MAY17	931	LI:272766.1.orf2:2001MAY17
354	LI:275726.1:2001MAY17	932	LI:275726.1.orf2:2001MAY17
355	LI:276815.1:2001MAY17	933	L1:276815.1.orf2:2001MAY17
356	LI:283562.5:2001MAY17	934	LI:283562.5.orf3:2001MAY17
357	LI:289066.15:2001MAY17	935	LI:289066.15.orf3:2001MAY17
358	LI:331040.17:2001MAY17	936	LI:331040.17.orf1:2001MAY17
359	LI:332414.5:2001MAY17	937	LI:332414.5.orf1:2001MAY17
360	LI:332730.16:2001MAY17	938	LI:332730.16.orf2:2001MAY17
361	LI:333849.21:2001MAY17	939	LI:333849.21.orf3:2001MAY17
362	LI:337038.15:2001MAY17	940	LI:337038.15.orf1:2001MAY17
363	LI:337606.6:2001MAY17	941	LI:337606.6.orf2:2001MAY17
364	LI:338032.10:2001MAY17	942	LI:338032.10.orf2:2001MAY17
365	LI:339265.16:2001MAY17	943	LI:339265.16.orf3:2001MAY17
366	LI:344646.4:2001MAY17	944	LI:344646.4.orf3:2001MAY17
367	LI:347393.7:2001MAY17	945	LI:347393.7.orf2:2001MAY17

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370	LI:358762.41:2001MAY17	949	LI:363003.48.orf2:2001MAY17
371	LI:363003.48:2001MAY17	950	LI:370899.6.orf1:2001MAY17
372	LI:370899.6:2001MAY17	950 951	LI:376470.1.orf2:2001MAY17
373	LI:376470.1:2001MAY17		
374	LI:400961.18:2001MAY17	952	LI:400961.18.orf1:2001MAY17 LI:404482.20.orf3:2001MAY17
375	LI:404482.20:2001MAY17	953 954	
376	LI:405985.1:2001MAY17	954	LI:405985.1.orf2:2001MAY17
377	LI:406389.1:2001MAY17	955	LI:406389.1.orf2:2001MAY17
378	LI:406833.1:2001MAY17	956	LI:406833.1.orf2:2001MAY17
379	LI:407921.3:2001MAY17	957	LI:407921.3.orf1:2001MAY17
380	LI:409078.54:2001MAY17	958	LI:409078.54.orf3:2001MAY17
381	LI:423601.6:2001MAY17	959	LI:423601.6.orf3:2001MAY17
382	LI:425024.5:2001MAY17	960	LI:425024.5.orf1:2001MAY17
383	LI:427909.29:2001MAY17	961	LI:427909.29.orf1:2001MAY17
384	LI:428198.20:2001MAY17	962	LI:428198.20.orf3:2001MAY17
385	LI:429738.6:2001MAY17	963	LI:429738.6.orf3:2001MAY17
386	LI:449437.1:2001MAY17	964	LI:449437.1.orf1:2001MAY17
387	LI:459269.25:2001MAY17	965	LI:459269.25.orf1:2001MAY17
388	LI:464206.1:2001MAY17	966	LI:464206.1.orf3:2001MAY17
389	LI:465821.2:2001MAY17	967	LI:465821.2.orf1:2001MAY17
390	LI:474414.28:2001MAY17	968	LI:474414.28.orf1:2001MAY17
391	LI:474435.14:2001MAY17	969	LI:474435:14.orf2:2001MAY17
392	LI:474458.11:2001MAY17	970	LI:474458.11.orf3:2001MAY17
393	LI:477127.18:2001MAY17	971	LI:477127.18.orf3:2001MAY17
394	LI:480375.55:2001MAY17	972	LI:480375.55.orf3:2001MAY17
395	LI:480467.24:2001MAY17	973	LI:480467:24.orf2:2001MAY17
396	LI:480587.1:2001MAY17	974	LI:480587.1.orf3:2001MAY17
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398	LI:481203.14:2001MAY17	976	LI:481203.14.orf1:2001MAY17
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400	LI:481368.12:2001MAY17	978	LI:481368.12.orf3:2001MAY17
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402	LI:482482.29:2001MAY17	980	LI:482482.29.orf1:2001MAY17
403	LI:758877.26:2001MAY17	981	L1:758877.26.orf3:2001MAY17
404	LI:791042.1:2001MAY17	982	LI:791042.1.orf3:2001MAY17
405	LI:808999.26:2001MAY17	983	LI:808999.26.orf3:2001MAY17
406	LI:815715.10:2001MAY17	984	LI:815715.10.orf1:2001MAY17
407	LI:902980.16:2001MAY17	985	LI:902980.16.orf3:2001MAY17
408	LI:903196.25:2001MAY17	986	LI:903196.25.orf2:2001MAY17
409	LI:903914.10:2001MAY17	987	LI:903914.10.orf2:2001MAY17
410	LG:006764.2:2001JUN22	988	LG:006764.2.orf2:2001JUN22
411	LG:014704.8:2001JUN22	989	LG:014704.8.orf3:2001JUN22
412	LG:1447607.7:2001JUN22	990	LG:1447607.7.orf1:2001JUN22
413	LG:1455032.3:2001JUN22	991	LG:1455032.3.orf2:2001JUN22
414	LG:1501898.18:2001JUN22	992	LG:1501898.18.orf1:2001JUN22
415	LG:1502692.5:2001JUN22	993	LG:1502692.5.orf2:2001JUN22
416	LG:208949.8:2001JUN22	994	LG:208949.8.orf2:2001JUN22
417	LG:240501.10:2001JUN22	995	LG:240501.10.orf3:2001JUN22
418	LG:329228.27:2001JUN22	996	LG:329228.27.orf2:2001JUN22
419	LG:337056.11:2001JUN22	997	LG:337056.11.orf2:2001JUN22
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421	LG:7685586.2:2001JUN22	999	LG:7685586.2.orf3:2001JUN22
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427	LG:1482904.10:2001JUN22	1005	LG:1482904.10.orf3:2001JUN22
428	LG:222317.4:2001JUN22	1006	LG:222317.4.orf2:2001JUN22
429	LG:332701.3:2001JUN22	1007	LG:332701.3.orf1:2001JUN22
430	LG:369881.5:2001JUN22	1008	LG:369881.5.orf1:2001JUN22
431	LG:404381.2:2001JUN22	1009	.LG:404381.2.orf2:2001JUN22
432	LG:405709.2:2001JUN22	1010	LG:405709.2.orf2:2001JUN22
433	LG:406664.17:2001JUN22	1011	LG:406664.17.orf3:2001JUN22
434	LG:7670681.1:2001JUN22	1012	LG:7670681.1.orf1:2001JUN22
435	LG:7687404.1:2001JUN22	1013	LG:7687404.1.orf2:2001JUN22
436	LG:7690030.24:2001JUN22	1014	LG:7690030.24.orf3:2001JUN22
437	LG:7690229.3:2001JUN22	1015	LG:7690229.3.orf1:2001JUN22
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439	LG:7691131.2:2001JUN22	1017	LG:7691131.2.orf3:2001JUN22
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445	LG:014719.14:2001JUN22	1023	LG:014719.14.orf3:2001JUN22
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447	LG:025397.1:2001JUN22	1025	LG:025397.1.orf3:2001JUN22
448	LG:029880.20:2001JUN22	1026	LG:029880.20.orf2:2001JUN22
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450	LG:065935.11:2001JUN22	1028	LG:065935.11.orf2:2001JUN22
451	LG:074381.1:2001JUN22	1029	LG:074381.1.orf2:2001JUN22
452	LG:083814.6:2001JUN22	1030	LG:083814.6.orf3:2001JUN22
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455	LG:1013708.26:2001JUN22	1033	LG:1013708.26.orf1:2001JUN22
456	LG:1022283.8:2001JUN22	1034	LG:1022283.8.orf1:2001JUN22
457	LG:1034386.1:2001JUN22	1035	LG:1034386.1.orf3:2001JUN22
458	LG:1045617.36:2001JUN22	1036	LG:1045617.36.orf1:2001JUN22
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470 471	LG:1383039.369:2001JUN22	1048 1049	LG:1383313.3.orf3:2001JUN22
471 472	LG:1383313.3:2001JUN22 LG:1384075.8:2001JUN22	1049	LG:1384075.8.orf2:2001JUN22
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478	LG:1446193.10:2001JUN22	1056	LG:1446193.10.orf1:2001JUN22
479	LG:1446405.14:2001JUN22	1057	LG:1446405.14.orf2:2001JUN22
480	LG:1448148.1:2001JUN22	1058	LG:1448148.1.orf1:2001JUN22
481	LG:1452619.13:2001JUN22	1059	LG:1452619.13.orf1:2001JUN22
482	LG:1452783.22:2001JUN22	1060	LG:1452783.22.orf3:2001JUN22
483	LG:1453417.5:2001JUN22	1061	LG:1453417.5.orf3:2001JUN22
484	LG:1455222.23:2001JUN22	1062	LG:1455222.23.orf1:2001JUN22
485	LG:149121.8:2001JUN22	1063	LG:149121.8.orf1:2001JUN22
486	LG:1500175.18:2001JUN22	1064	LG:1500175.18.orf3:2001JUN22
487	LG:1500434.6:2001JUN22	1065	LG:1500434.6.orf2:2001JUN22
488	LG:1501550.19:2001JUN22	1066	LG:1501550.19.orf1:2001JUN22
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490	LG:150960.9:2001JUN22	1068	LG:150960.9.orf2:2001JUN22
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492	LG:197166.1:2001JUN22	1070	LG:197166.1.orf1:2001JUN22
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513	LG:247792.5:2001JUN22	1091	LG:247792.5.orf3:2001JUN22
514	LG:253580.6:2001JUN22	1092	LG:253580.6.orf3:2001JUN22
515	LG:291759.5:2001JUN22	1093	LG:291759.5.orf3:2001JUN22
516	LG:298226.1:2001JUN22	1094	LG:298226.1.orf1:2001JUN22
517	LG:306342.1:2001JUN22	1095	LG:306342.1.orf2:2001JUN22
517	LG:327144.5:2001JUN22	1096	LG:327144.5.orf2:2001JUN22
519	LG:331499.8:2001JUN22	1097	LG:331499.8.orf3:2001JUN22
520	LG:331582.12:2001JUN22	1098	LG:331582.12.orf2:2001JUN22
521	LG:331382.12.20013UN22	1099	LG:333017.12.orf2:2001JUN22
522	LG:334438.8:2001JUN22	1100	LG:334438.8.orf2:2001JUN22
522 523	LG:337835.7:2001JUN22	1101	LG:337835.7.orf3:2001JUN22
	LG:33/835.7:2001JUN22 LG:346536.12:2001JUN22	1101	LG:346536.12.orf2:2001JUN22
524 525	LG:348117.5:2001JUN22	1102	LG:348117.5.orf1:2001JUN22
525 526	LG:348117.5:2001JUN22 LG:350407.22:2001JUN22	1103	LG:350407.22.orf3:2001JUN22
526 527	LG:373219.13:2001JUN22	1104	LG:373219.13.orf2:2001JUN22
527	LG:373219.13:2001JUN22 LG:375048.15:2001JUN22	1105	LG:375048.15.orf3:2001JUN22
528			LG:400114.3.orf3:2001JUN22
529	LG:400114.3:2001JUN22	1107	LG:400114.3.0II3:2003JON22

SEQ ID NO:	Template ID	SEQ ID NO:	ORF ID
530	LG:400652.1:2001JUN22	1108	LG:400652.1.orf1:2001JUN22
531	LG:401313.10:2001JUN22	1109	LG:401313.10.orf1:2001JUN22
532	LG:406389.1:2001JUN22	1110	LG:406389.1.orf2:2001JUN22
533	LG:406595.2:2001JUN22	1111	LG:406595.2.orf1:2001JUN22
534	LG:410628.21:2001JUN22	1112	LG:410628.21.orf2:2001JUN22
535	LG:413583.15:2001JUN22	1113	LG:413583.15.orf3:2001JUN22
536	LG:419641.35:2001JUN22	1114	LG:419641.35.orf3:2001JUN22
537	LG:420759.4:2001JUN22	1115	LG:420759.4.orf1:2001JUN22
538	LG:425448.18:2001JUN22	1116	LG:425448.18.orf1:2001JUN22
539	LG:435717.5:2001JUN22	1117	LG:435717.5.orf1:2001JUN22
540	LG:441159.31:2001JUN22	1118	LG:441159.31.orf1:2001JUN22
541	LG:461375,2:2001JUN22	1119	LG:461375.2.orf1:2001JUN22
542	LG:474674.34:2001JUN22	1120	LG:474674.34.orf3:2001JUN22
543	LG:481414.8:2001JUN22	1121	LG:481414.8.orf1:2001JUN22
544	LG:7669276.1:2001JUN22	1122	LG:7669276.1.orf2:2001JUN22
545	LG:7677848.1:2001JUN22	1123	LG:7677848.1.orf3:2001JUN22
546	LG:7684981.3:2001JUN22	1124	LG:7684981.3.orf3:2001JUN22
547	LG:7685048.6:2001JUN22	1125	LG:7685048.6.orf2:2001JUN22
548	LG:7688302.1:2001JUN22	1126	LG:7688302.1.orf3:2001JUN22
549	LG:7690463.3:2001JUN22	1127	LG:7690463.3.orf1:2001JUN22
550	LG:7691479.5:2001JUN22	1128	LG:7691479.5.orf1:2001JUN22
551	LG:7691527.4:2001JUN22	1129	LG:7691527.4.orf1:2001JUN22
552	LG:7691663.1:2001JUN22	1130	LG:7691663.1.orf2:2001JUN22
- 553	LG:7691854.1:2001JUN22	1131	LG:7691854.1.orf2:2001JUN22
554	LG:7692235.2:2001JUN22	1132 .	LG:7692235.2.orf2:2001JUN22
555 -	LG:7692239.1:2001JUN22	1133	LG:7692239.1.orf1:2001JUN22
556	LG:7692575.1:2001JUN22	1134	LG:7692575.1.orf1:2001JUN22
557	LG:7692742.1:2001JUN22	1135	LG:7692742.1.orf1:2001JUN22
558	LG:7693942.1:2001JUN22	1136	LG:7693942.1.orf3:2001JUN22
559	LG:899248.22:2001JUN22	1137	LG:899248.22.orf1:2001JUN22
560	LG:979051.25:2001JUN22	1138	LG:979051.25.orf2:2001JUN22
561	LG:979054.18:2001JUN22	1139	LG:979054.18.orf2:2001JUN22
562	LG:979415.1:2001JUN22	1140	LG:979415.1.orf1:2001JUN22
562	LG:979415.1:2001JUN22	1141	LG:979415.1.orf3:2001JUN22
563	LG:980685.1:2001JUN22	1142	LG:980685.1.orf3:2001JUN22
564	LG:981272.6:2001JUN22	1143	LG:981272.6.orf1:2001JUN22
565	LG:982723.4:2001JUN22	1144	LG:982723.4.orf3:2001JUN22
566	LG:982915.8:2001JUN22	1145	LG:982915.8.orf2:2001JUN22
567	LG:987785.10:2001JUN22	1146	LG:987785.10.orf2:2001JUN22
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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
1	LG:1041015.22:2001MAR30	1	19	forward 1	TM	Non-Cytosolic
1	LG:1041015.22:2001MAR30	20	42	forward 1	TM	Transmembrane
1	LG:1041015.22:2001MAR30	43	54	forward 1	TM	Cytosolic
1	LG:1041015.22:2001MAR30	55	77	forward 1	TM	Transmembrane
1	LG:1041015.22:2001MAR30	78	290	forward 1	TM	Non-Cytosolic
1	LG:1041015.22:2001MAR30	1	60	forward 2	TM	Cytosolic
1	LG:1041015.22:2001MAR30	61	83	forward 2	TM	Transmembrane
1	LG:1041015.22:2001MAR30	84	290	forward 2	TM	Non-Cytosolic
2	LG:106877.10:2001MAR30	1	78	forward 1	TM	Non-Cytosolic
2	LG:106877.10:2001MAR30	79	101	forward 1	TM	Transmembrane
2	LG:106877.10:2001MAR30	102	127	forward 1	TM	Cytosolic
2	LG:106877.10:2001MAR30	128	150	forward 1	TM	Transmembrane
2	LG:106877.10:2001MAR30	151	952	forward 1	TM	Non-Cytosolic
2	LG:106877.10:2001MAR30	1	71	forward 3	TM	Non-Cytosolic
2	LG:106877.10:2001MAR30	72	94	forward 3	TM	Transmembrane
2	LG:106877.10:2001MAR30	95	177	forward 3	TM	Cytosolic
2	LG:106877.10:2001MAR30	178	200	forward 3	TM	Transmembrane
2	LG:106877.10:2001MAR30	201	742	forward 3	TM	Non-Cytosolic
2	LG:106877.10:2001MAR30	743	765	forward 3	TM	Transmembrane
2	LG:106877.10:2001MAR30	766	952	forward 3	TM	Cytosolic
3	LG:1138554.16:2001MAR30	1	227	forward 3	TM	Non-Cytosolic
3	LG:1138554.16:2001MAR30	228	250	forward 3	TM	Transmembrane
3	LG:1138554.16:2001MAR30	251	256	forward 3	TM	Cytosolic
3	LG:1138554.16:2001MAR30	257	279	forward 3	TM	Transmembrane
3	LG:1138554.16:2001MAR30	280	293	forward 3	TM	Non-Cytosolic
3	LG:1138554.16:2001MAR30	294	316	forward 3	TM	Transmembrane
3	LG:1138554.16:2001MAR30	317	332	forward 3	TM	Cytosolic
4	LG:1383277.7:2001MAR30	1	44	forward 1	TM	Cytosolic
4	LG:1383277.7:2001MAR30	45	67	forward 1	TM	Transmembrane
4	LG:1383277.7:2001MAR30	68	155	forward 1	TM	Non-Cytosolic
4	LG:1383277.7:2001MAR30	156	178	forward I	, TM	Transmembrane
4	LG:1383277.7:2001MAR30	179	198	forward 1	TM	Cytosolic
4	LG:1383277.7:2001MAR30	199	218	forward 1	TM	Transmembrane
4	LG:1383277.7:2001MAR30	219	221	forward 1	TM	Non-Cytosolic
4	LG:1383277.7:2001MAR30	1	52	forward 2	TM	Non-Cytosolic
4	LG:1383277.7:2001MAR30	53	75	forward 2	TM	Transmembrane
4	LG:1383277.7:2001MAR30	76	221	forward 2	TM	Cytosolic
4	LG:1383277.7:2001MAR30	1	67	forward 3	TM	Cytosolic
4	LG:1383277.7:2001MAR30	68	90	forward 3	TM	Transmembrane
4	LG:1383277.7:2001MAR30	91	93	forward 3	TM	Non-Cytosolic
4	LG:1383277.7:2001MAR30	94	113	forward 3	TM	Transmembrane
4	LG:1383277.7:2001MAR30	114	153	forward 3	TM .	Cytosolic
4	LG:1383277.7:2001MAR30	154	176	forward 3	TM	Transmembrane
4	LG:1383277.7:2001MAR30	177	198	forward 3	TM	
						Non-Cytosolic
4 .	LG:1383277.7:2001MAR30	199	218	forward 3	TM	Transmembrane
4	LG:1383277.7:2001MAR30	219	220	forward 3	TM	Cytosolic
5	LG:1397614.15:2001MAR30	1	1	forward 1	TM	Cytosolic
5	LG:1397614.15:2001MAR30	2	21	forward 1	TM	Transmembrane
5	LG:1397614.15:2001MAR30	22	35 50	forward 1	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	36 50	58	forward 1	TM	Transmembrane
5	LG:1397614.15:2001MAR30	59	193	forward 1	TM	Cytosolic
5	LG:1397614.15:2001MAR30	194	216	forward 1	TM	Transmembrane
5	LG:1397614.15:2001MAR30	217	225	forward 1	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	226	243	forward 1	TM	Transmembrane

		TABI	.F. 2			
SEQ D NO	D: Template ID	Start	Stop	Frame	Domain Type	Topology
5	LG:1397614.15:2001MAR30	244	259	forward 1	TM	Cytosolic
5	LG:1397614.15:2001MAR30	260	282	forward 1	TM	Transmembrane
5	LG:1397614.15:2001MAR30	283	458	forward 1	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	459	481	forward 1	TM	Transmembrane
5	LG:1397614.15:2001MAR30	482	534	forward 1	TM	Cytosolic
5	LG:1397614.15:2001MAR30	535	557	forward 1	TM	Transmembrane
5	LG:1397614.15:2001MAR30	558	566	forward 1	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	567	589	forward 1	TM	Transmembrane
5	LG:1397614.15:2001MAR30	590	644	forward 1	TM	Cytosolic
5	LG:1397614.15:2001MAR30	1	43	forward 2	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	44	66	forward 2	TM	Transmembrane
5	LG:1397614.15:2001MAR30	67	97	forward 2	TM	Cytosolic
5	LG:1397614.15:2001MAR30	98	120	forward 2	TM	Transmembrane
5	LG:1397614.15:2001MAR30	121	195	forward 2	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	196	218	forward 2	TM	Transmembrane
5	LG:1397614.15:2001MAR30	219	260	forward 2	TM	Cytosolic
5	LG:1397614.15:2001MAR30	261	283	forward 2	TM	Transmembrane
5	LG:1397614.15:2001MAR30	284	342	forward 2	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	343	365	forward 2	TM	Transmembrane
5	LG:1397614.15:2001MAR30	366	457	forward 2	TM	Cytosolic
5	LG:1397614.15:2001MAR30	458	480	forward 2	TM	Transmembrane
5	LG:1397614.15:2001MAR30	481	499	forward 2	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	500	522	forward 2	TM	Transmembrane
5	LG:1397614.15:2001MAR30	523	644	forward 2	TM	Cytosolic
5	LG:1397614.15:2001MAR30	1	1	forward 3	TM	Cytosolic
5	LG:1397614.15:2001MAR30	. 2	19	forward 3	TM :	Transmembrane
5	LG:1397614.15:2001MAR30	. 20	33	forward 3	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	34	56	forward 3	TM	Transmembrane
5	LG:1397614.15:2001MAR30	57	195	forward 3	<b>TM</b> ·	Cytosolic
5	LG:1397614.15:2001MAR30	196	218	forward 3	TM	Transmembrane
5	LG:1397614.15:2001MAR30	219	263	forward 3	TM ·	Non-Cytosolic
5	LG:1397614.15:2001MAR30	264	286	forward 3	TM	Transmembrane
5	LG:1397614.15:2001MAR30	287	292	forward 3	TM	Cytosolic
5	LG:1397614.15:2001MAR30	293	315	forward 3	TM	Transmembrane
5	LG:1397614.15:2001MAR30	316	324	forward 3	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	325	347	forward 3	TM	Transmembrane
5	LG:1397614.15:2001MAR30	348	396	forward 3	TM	Cytosolic
5	LG:1397614.15:2001MAR30	397	416	forward 3	TM	Transmembrane
5	LG:1397614.15:2001MAR30	417	457	forward 3	TM ·	Non-Cytosolic
5	LG:1397614.15:2001MAR30	458	480	forward 3	TM	Transmembrane
5	LG:1397614.15:2001MAR30	481	533	forward 3	TM	Cytosolic
5	LG:1397614.15:2001MAR30	534	556	forward 3	TM	Transmembrane
5	LG:1397614.15:2001MAR30	557	565	forward 3	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	566	588	forward 3	TM	Transmembrane
5	LG:1397614.15:2001MAR30	589	644	forward 3	TM	Cytosolic
Ū	LG:1399315.8:2001MAR30	1	612	forward 2	TM	Non-Cytosolic
6	LG:1399315.8:2001MAR30	613	635	forward 2	TM	Transmembrane
6 6	LG:1399315.8:2001MAR30	636	742	forward 2	TM	Cytosolic
6	LG:1399315.8:2001MAR30	743 761	760	forward 2	TM	Transmembrane
6	LG:1399315.8:2001MAR30	761 1	987	forward 2	TM	Non-Cytosolic
6	LG:1399315.8:2001MAR30	1 244	243		' TM	Non-Cytosolic
6	LG:1399315.8:2001MAR30	262	261	forward 3	TM	Transmembrane
6	LG:1399315.8:2001MAR30 LG:1399315.8:2001MAR30	293	292 315	forward 3 forward 3	TM TM	Cytosolic Transmembrane
Ų	LG.1399313.0;2001WAX30	493	213	torward 3	1 141	Transmoniorane

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
6	LG:1399315.8:2001MAR30	316	986	forward 3	TM	Non-Cytosolic
7	LG:198782.1:2001MAR30	1	735	forward 1	TM	Non-Cytosolic
7	LG:198782.1:2001MAR30	736	758	forward 1	TM	Transmembrane
7	LG:198782.1:2001MAR30	759	770	forward 1	TM	Cytosolic
7	LG:198782.1:2001MAR30	771	793	forward 1	TM	Transmembrane
7	LG:198782.1:2001MAR30	794	851	forward 1	TM	Non-Cytosolic
7	LG:198782.1:2001MAR30	1	27	forward 2	TM	Non-Cytosolic
7	LG:198782.1:2001MAR30	28	50	forward 2	TM	Transmembrane
7	LG:198782.1:2001MAR30	51	377	forward 2	TM	Cytosolic
7	LG:198782.1:2001MAR30	378	400	forward 2	TM	Transmembrane
7	LG:198782.1:2001MAR30	401	404	forward 2	TM	Non-Cytosolic
7	LG:198782.1:2001MAR30	401	424	forward 2	TM	Transmembrane
7		425	769	forward 2	TM	Cytosolic
	LG:198782.1:2001MAR30		792	forward 2	TM	Transmembrane
7	LG:198782.1:2001MAR30	770				
7	LG:198782.1:2001MAR30	793	801	forward 2	TM	Non-Cytosolic
.7	LG:198782.1:2001MAR30	802	819	forward 2	TM	Transmembrane
7	LG:198782.1:2001MAR30	820	850	forward 2	TM	Cytosolic
7	LG:198782.1:2001MAR30	1	33	forward 3	TM	Non-Cytosolic
7	LG:198782.1:2001MAR30	34	51	forward 3	TM	Transmembrane
7	LG:198782.1:2001MAR30	52	380	forward 3	TM	Cytosolic
7	LG:198782.1:2001MAR30	381	403	forward 3	TM	Transmembrane
7	LG:198782.1:2001MAR30	404	406	forward 3	TM	Non-Cytosolic
7	LG:198782.1:2001MAR30	407	424	forward 3	TM	Transmembrane
7	LG:198782.1:2001MAR30	425	436	forward 3	TM	Cytosolic
7	LG:198782.1:2001MAR30	437	459	forward 3	TM	Transmembrane
7	LG:198782.1:2001MAR30	460	541	forward 3	TM	Non-Cytosolic
7	LG:198782.1:2001MAR30	542	564	forward 3	TM	Transmembrane
7	LG:198782.1:2001MAR30	565	· 770	forward 3	TM	Cytosolic
7	LG:198782.1:2001MAR30	771	. 793	forward 3	TM	Transmembrane
7	LG:198782.1:2001MAR30	794	802	forward 3	TM	Non-Cytosolic
7	LG:198782.1:2001MAR30	803	822	forward 3	TM	Transmembrane
7	LG:198782.1:2001MAR30	823	850	forward 3	TM	Cytosolic
8	LG:236046.1:2001MAR30	. 1	160	forward 1	TM	Non-Cytosolic
8	LG:236046.1:2001MAR30	161	183	forward 1	TM	Transmembrane
8	LG:236046.1:2001MAR30	184	203	forward 1	TM	Cytosolic
8	LG:236046.1:2001MAR30	204	226	forward 1	TM	Transmembrane
8	LG:236046.1:2001MAR30	227	235	forward 1	TM	Non-Cytosolic
8	LG:236046.1:2001MAR30	236	253	forward 1	TM	Transmembrane
8	LG:236046.1:2001MAR30	254	273	forward 1	TM	Cytosolic
8	LG:236046.1:2001MAR30	274	296	forward 1	TM	Transmembrane
8	LG:236046.1:2001MAR30	297	367	forward 1	TM	Non-Cytosolic
8	LG:236046.1:2001MAR30	368	390	forward 1	TM	Transmembrane
8	LG:236046.1:2001MAR30	391	396	forward 1	TM	Cytosolic
8	LG:236046.1:2001MAR30	397	416	forward 1	TM	Transmembrane
8	LG:236046.1:2001MAR30	417	848	forward 1	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	1	389	forward 1	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	390	412	forward 1	TM	Transmembrane
	LG:332122.6:2001MAR30	413	447	forward 1	TM	Cytosolic
9.	LG:332122.6:2001MAR30 LG:332122.6:2001MAR30	413	470	forward 1	TM	Transmembrane
9			557	forward 1		Non-Cytosolic
9	LG:332122,6:2001MAR30	471			TM TM	Transmembrane
9	LG:332122.6:2001MAR30	558 576	575 655	forward 1		Cytosolic
9	LG:332122.6:2001MAR30	576	655	forward 1	TM	
9	LG:332122.6:2001MAR30	656	678	forward 1		Transmembrane
9	LG:332122.6:2001MAR30	679	681	forward 1	TM	Non-Cytosolic

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
9	LG:332122.6:2001MAR30	682	701	forward 1	TM	Transmembrane
9	LG:332122.6:2001MAR30	702	758	forward 1	TM	Cytosolic
9	LG:332122.6:2001MAR30	759	778	forward 1	TM	Transmembrane
9	LG:332122.6:2001MAR30	779	797	forward 1	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	798	817	forward 1	TM	Transmembrane
9	LG:332122.6:2001MAR30	818	837	forward 1	TM	Cytosolic
9	LG:332122.6:2001MAR30	1	66	forward 2	TM	Cytosolic
9	LG:332122.6:2001MAR30	67	84	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	85	120	forward 2	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	121	140	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	141	235	forward 2	TM	Cytosolic
9	LG:332122.6:2001MAR30	236	255	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	256	269	forward 2	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	270	289	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	290	347	forward 2	TM	Cytosolic
9	LG:332122.6:2001MAR30	348	370	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	371 <sup>-</sup>	396	forward 2	TM	Non-Cytosolic
9.	LG:332122.6:2001MAR30	397	419	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	420	431	forward 2	TM	Cytosolic
9	LG:332122.6:2001MAR30	432	451	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	452	465	forward 2	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	466	488	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	489	554	forward 2	TM	Cytosolic
9	LG:332122.6:2001MAR30	555	574	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	575	837	forward 2	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	1	231	forward 3	TM	Cytosolic
9	LG:332122.6:2001MAR30	232	254.	forward 3	TM	Transmembrane
9	LG:332122.6:2001MAR30	255	268	forward 3	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	269	286		TM	Transmembrane
9	LG:332122.6:2001MAR30	287	328	forward 3	TM	Cytosolic
9	LG:332122.6:2001MAR30	329	351	forward 3	TM	Transmembrane
9	LG:332122.6:2001MAR30	352	393	forward 3	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	394	416	forward 3	TM	Transmembrane
9	LG:332122.6:2001MAR30	417	428	forward 3	TM	Cytosolic
9	LG:332122.6:2001MAR30	429	451	forward 3	TM	Transmembrane
9	LG:332122.6:2001MAR30	452	836	forward 3	TM	Non-Cytosolic
10	LG:345320.16:2001MAR30	1	82	forward 1	TM	Cytosolic
10	LG:345320.16:2001MAR30	83	105	forward 1	TM	Transmembrane
10	LG:345320.16:2001MAR30	106	114	forward 1	TM	Non-Cytosolic
10	LG:345320.16:2001MAR30	115	137	forward 1	TM	Transmembrane
10	LG:345320.16:2001MAR30	138	290	forward 1	TM	Cytosolic
10	LG:345320.16:2001MAR30	291	313	forward 1	TM	Transmembrane
10	LG:345320.16:2001MAR30	314	327	forward 1	TM	Non-Cytosolic
10	LG:345320.16:2001MAR30	328	350	forward 1	TM	Transmembrane
10	LG:345320.16:2001MAR30	351	424	forward 1	TM	Cytosolic
10	LG:345320.16:2001MAR30	425	447	forward 1	TM	Transmembrane
10	LG:345320.16:2001MAR30	448	764	forward 1	TM	Non-Cytosolic
10	LG:345320.16:2001MAR30	1	98	forward 2	TM	Cytosolic
10	LG:345320.16:2001MAR30	99	121	forward 2	TM	Transmembrane
10	LG:345320.16:2001MAR30	122	159	forward 2	TM	Non-Cytosolic
10	LG:345320.16:2001MAR30	160	182	forward 2	TM	Transmembrane
10	LG:345320.16:2001MAR30	183	188	forward 2	TM	Cytosolic
10	LG:345320.16:2001MAR30	189	211	forward 2	TM	Transmembrane
10	LG:345320.16:2001MAR30	212	331	forward 2	TM	Non-Cytosolic
10	20.7-7-720.10.20011VIANJU	-12	551	.01 "410 2	~***	1.011 071030110

		TABI	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
5	LG:1397614.15:2001MAR30	244	259	forward 1	TM	Cytosolic
5	LG:1397614.15:2001MAR30	260	282	forward 1	TM	Transmembrane
5	LG:1397614.15:2001MAR30	283	458	forward 1	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	459	481	forward 1	TM	Transmembrane
5	LG:1397614.15:2001MAR30	482	534	forward 1	TM	Cytosolic
5	LG:1397614.15:2001MAR30	535	557	forward 1	TM	Transmembrane
5	LG:1397614.15:2001MAR30	558	566	forward 1	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	567	589	forward 1	TM	Transmembrane
5	LG:1397614.15:2001MAR30	590	644	forward 1	TM	Cytosolic
5	LG:1397614.15:2001MAR30	1	43	forward 2	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	44	66	forward 2	TM	Transmembrane
5	LG:1397614.15:2001MAR30	67	97	forward 2	TM	Cytosolic
5	LG:1397614.15:2001MAR30	98	120	forward 2	TM	Transmembrane
5	LG:1397614.15:2001MAR30	121	195	forward 2	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	196	218	forward 2	TM	Transmembrane
5	LG:1397614.15:2001MAR30	219	260	forward 2	TM	Cytosolic
5	LG:1397614.15:2001MAR30	261	283	forward 2	TM	Transmembrane
5	LG:1397614.15:2001MAR30	284	342	forward 2	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	343	365	forward 2	TM	Transmembrane
5	LG:1397614.15:2001MAR30	366	457	forward 2	TM	Cytosolic
5	LG:1397614.15:2001MAR30	458	480	forward 2	TM	Transmembrane
5	LG:1397614.15:2001MAR30	481	499	forward 2	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	500	522	forward 2	TM	Transmembrane
5	LG:1397614.15:2001MAR30	523	644	forward 2	TM	Cytosolic
5	LG:1397614.15:2001MAR30	1	1	forward 3	TM	Cytosolic
. 5	LG:1397614.15:2001MAR30	2	19	forward 3		Transmembrane
5	LG:1397614.15:2001MAR30	20	33	forward 3	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	34	56	forward 3	TM	Transmembrane
5	LG:1397614.15:2001MAR30	57	195	forward 3	TM	Cytosolic
5	LG:1397614.15:2001MAR30	196	218	forward 3	TM .	Transmembrane
5	LG:1397614.15:2001MAR30	219	263	forward 3	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	264	286	forward 3	TM	Transmembrane
5	LG:1397614.15:2001MAR30	287	292	forward 3	TM	Cytosolic
5	LG:1397614.15:2001MAR30	293	315	forward 3	TM	Transmembrane
5 5	LG:1397614.15:2001MAR30	316 325	324 347	forward 3 forward 3	TM	Non-Cytosolic Transmembrane
. 5	LG:1397614.15:2001MAR30 LG:1397614.15:2001MAR30	348	396	forward 3	TM TM	
. 3 5	LG:1397614.15:2001MAR30	346 397	416	forward 3	TM	Cytosolic Transmembrane
5	LG:1397614.15:2001MAR30	417	457	forward 3	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	458	480	forward 3	TM	Transmembrane
5	LG:1397614.15:2001MAR30	481	533	forward 3	TM	Cytosolic
5	LG:1397614.15:2001MAR30	534	556	forward 3	TM	Transmembrane
5	LG:1397614.15:2001MAR30	557	565	forward 3	TM	Non-Cytosolic
5	LG:1397614.15:2001MAR30	566	588	forward 3	TM	Transmembrane
5	LG:1397614.15:2001MAR30	589	644	forward 3	TM	Cytosolic
6	LG:1399315.8:2001MAR30	1	612	forward 2	TM	Non-Cytosolic
6	LG:1399315.8:2001MAR30	613	635	forward 2	TM	Transmembrane
6	LG:1399315.8:2001MAR30	636	742	forward 2	TM	Cytosolic
6	LG:1399315.8:2001MAR30	743	760	forward 2	TM	Transmembrane
6	LG:1399315.8:2001MAR30	761	987	forward 2	TM	Non-Cytosolic
6	LG:1399315.8:2001MAR30	1	243	forward 3	TM	Non-Cytosolic
6	LG:1399315.8:2001MAR30	244	261	forward 3	TM	Transmembrane
6	LG:1399315.8:2001MAR30	262	292	forward 3	TM	Cytosolic
6	LG:1399315.8:2001MAR30	293	315	forward 3	TM	Transmembrane
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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
6	LG:1399315.8:2001MAR30	316	986	forward 3	TM	Non-Cytosolic
7	LG:198782.1:2001MAR30	1	735	forward 1	TM	Non-Cytosolic
7	LG:198782.1:2001MAR30	736	758	forward 1	TM	Transmembrane
7	LG:198782.1:2001MAR30	759	770	forward 1	TM	Cytosolic
7	LG:198782.1:2001MAR30	771	793	forward 1	TM	Transmembrane
7	LG:198782.1:2001MAR30	794	851	forward 1	TM	Non-Cytosolic
7	LG:198782.1:2001MAR30	1	27	forward 2	TM	Non-Cytosolic
	LG:198782.1:2001MAR30	28	50	forward 2	TM	Transmembrane
7	LG:198782.1:2001MAR30	51	377	forward 2	TM	Cytosolic
7	LG:198782.1:2001MAR30	378	400	forward 2	TM	Transmembrane
7	LG:198782.1:2001MAR30	401	404	forward 2	TM	Non-Cytosolic
7	LG:198782.1:2001MAR30	405	424	forward 2	TM	Transmembrane
7	LG:198782.1:2001MAR30	425	769	forward 2	TM	Cytosolic
7	LG:198782.1:2001MAR30	770	792	forward 2	TM	Transmembrane
7	LG:198782.1:2001MAR30	793	801	forward 2	TM	Non-Cytosolic
7	LG:198782.1:2001MAR30	802	819	forward 2	TM	Transmembrane
7	LG:198782.1:2001MAR30	820	850	forward 2	TM	Cytosolic
7	LG:198782.1:2001MAR30	1	33	forward 3	TM	Non-Cytosolic
7	LG:198782.1:2001MAR30	34	51	forward 3	TM	Transmembrane
7	LG:198782.1:2001MAR30	52	380	forward 3	TM	Cytosolic
7	LG:198782.1:2001MAR30	381	403	forward 3	TM	Transmembrane
7	LG:198782.1:2001MAR30	404	406	forward 3	TM	Non-Cytosolic
· 7	LG:198782.1:2001MAR30	407	424	forward 3	TM	Transmembrane
7	LG:198782.1:2001MAR30	425	436	forward 3	TM	Cytosolic
7	LG:198782.1:2001MAR30	437	459	forward 3	TM	Transmembrane
7	LG:198782.1:2001MAR30	460	541	forward 3	TM	Non-Cytosolic
7	LG:198782.1:2001MAR30	542	564	forward 3	TM	Transmembrane
7	LG:198782.1:2001MAR30	565	770	forward 3	TM	Cytosolic
7	LG:198782.1:2001MAR30	771	793	forward 3	TM	Transmembrane
7	LG:198782.1:2001MAR30	794	802	forward 3	TM	Non-Cytosolic
7	LG:198782.1:2001MAR30	803	822	forward 3	TM	Transmembrane
7	LG:198782.1:2001MAR30	823	850	forward 3	TM	Cytosolic
8	LG:236046.1:2001MAR30	1	160	forward 1	TM	Non-Cytosolic
8	LG:236046.1:2001MAR30	161	183	forward 1	TM	Transmembrane
8	LG:236046.1:2001MAR30	184	203	forward 1	TM	Cytosolic
8	LG:236046.1:2001MAR30	204	226	forward 1	TM	Transmembrane
8	LG:236046.1:2001MAR30	227	235	forward 1	TM	Non-Cytosolic
8	LG:236046.1:2001MAR30	236	253	forward 1	TM	Transmembrane
8	LG:236046.1:2001MAR30	254	273	forward 1	TM	Cytosolic
8	LG:236046.1:2001MAR30	274	296	forward 1	TM	Transmembrane
8	LG:236046.1:2001MAR30	297	367	forward 1	TM	Non-Cytosolic
8	LG:236046.1:2001MAR30	368	390	forward 1	TM	Transmembrane
8	LG:236046.1:2001MAR30	391	396	forward 1	TM	Cytosolic
8	LG:236046.1:2001MAR30	397	416	forward 1	TM	Transmembrane
8	LG:236046.1:2001MAR30	417	848	forward 1	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	1	389	forward 1	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	390	412	forward 1	TM	Transmembrane
9	LG:332122.6:2001MAR30	413	447	forward 1	TM	Cytosolic
9	LG:332122.6:2001MAR30	413	470	forward 1	TM	-
9	LG:332122.6:2001MAR30	448 471	557	forward 1	TM	Transmembrane
9	LG:332122.6:2001MAR30			forward 1		Non-Cytosolic
9		558 576	575 655	forward 1	TM TM	Transmembrane
9	LG:332122.6:2001MAR30 LG:332122.6:2001MAR30	576 656	678	forward 1	TM	Cytosolic
9	LG:332122.6:2001MAR30 LG:332122.6:2001MAR30				TM	Transmembrane
9	LU:552122.0:2001MAK30	679	681	forward 1	TM	Non-Cytosolic

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
9	LG:332122.6:2001MAR30	682	701	forward 1	TM	Transmembrane
9	LG:332122.6:2001MAR30	702	758	forward 1	TM	Cytosolic
9	LG:332122.6:2001MAR30	759	778	forward 1	TM	Transmembrane
9	LG:332122.6:2001MAR30	779	797	forward 1	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	798	817	forward 1	TM	Transmembrane
9	LG:332122.6:2001MAR30	818	837	forward 1	TM	Cytosolic
9	LG:332122.6:2001MAR30	1	66	forward 2	TM	Cytosolic
9	LG:332122.6:2001MAR30	67	84	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	85	120	forward 2	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	121	140	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	141	235	forward 2	TM	Cytosolic
9	LG:332122.6:2001MAR30	236	255	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	256	269	forward 2	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	270	289	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	290	347	forward 2	TM	Cytosolic
9	LG:332122.6:2001MAR30	348	370	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	371	396	forward 2	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	397	419	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	420	431	forward 2	TM	Cytosolic
9	LG:332122.6:2001MAR30	432	451	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	452	465	forward 2	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	466	488	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	489	554	forward 2	TM	Cytosolic
9	LG:332122.6:2001MAR30	555	574	forward 2	TM	Transmembrane
9	LG:332122.6:2001MAR30	575	837	forward 2	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	1	231	forward 3	TM	Cytosolic
9	LG:332122.6:2001MAR30	232	254	forward 3	TM	Transmembrane
9	LG:332122.6:2001MAR30	255	268	forward 3	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	269	286	forward 3	TM	Transmembrane
9	LG:332122.6:2001MAR30	287	328	forward 3	TM	Cytosolic
9	LG:332122.6:2001MAR30	329	351	forward 3	TM	Transmembrane
9	LG:332122.6:2001MAR30	352	393	forward 3	TM	Non-Cytosolic
9	LG:332122.6:2001MAR30	394	416	forward 3	TM	Transmembrane
9	LG:332122.6:2001MAR30	417	428	forward 3	TM	Cytosolic
9	LG:332122.6:2001MAR30	429	451	forward 3	TM	Transmembrane
9	LG:332122.6:2001MAR30	452	836	forward 3	TM	Non-Cytosolic
10	LG:345320.16:2001MAR30	1	82	forward 1	TM	Cytosolic
10	LG:345320.16:2001MAR30	83	105	forward 1	TM	Transmembrane
10	LG:345320.16:2001MAR30	106	114	forward 1	TM	Non-Cytosolic
10	LG:345320.16:2001MAR30	115	137	forward 1	TM	Transmembrane
10	LG:345320.16:2001MAR30	138	290	forward 1	TM	Cytosolic
10	LG:345320.16:2001MAR30	291	313	forward 1	TM	Transmembrane
10	LG:345320.16:2001MAR30	314	327	forward 1	TM	Non-Cytosolic
10	LG:345320.16:2001MAR30	328	350	forward 1	TM	Transmembrane
10	LG:345320.16:2001MAR30	351	424	forward 1	TM	Cytosolic
10	LG:345320.16:2001MAR30	425	447	forward 1	TM	Transmembrane
10	LG:345320.16:2001MAR30	448	764	forward 1	TM	Non-Cytosolic
10	LG:345320.16:2001MAR30	1	98	forward 2	TM	Cytosolic
10	LG:345320.16:2001MAR30	99	121	forward 2	TM	Transmembrane
10	LG:345320.16:2001MAR30	122	159	forward 2	TM	Non-Cytosolic
10	LG:345320.16:2001MAR30	160	182	forward 2	TM	Transmembrane
10	LG:345320.16:2001MAR30	183	188	forward 2	TM	Cytosolic
10	LG:345320.16:2001MAR30	189	211	forward 2	TM	Transmembrane
10	LG:345320.16:2001MAR30	212	331	forward 2	TM	Non-Cytosolic

SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
10	LG:345320.16:2001MAR30	332	354	forward 2	TM	Transmembrane
10	LG:345320.16:2001MAR30	355	447	forward 2	TM	Cytosolic
10	LG:345320.16:2001MAR30	448	470	forward 2	TM	Transmembrane
10	LG:345320.16:2001MAR30	471	764	forward 2	TM	Non-Cytosolic
10	LG:345320.16:2001MAR30	1	88	forward 3	TM	
10		89	-	forward 3	TM	Cytosolic
	LG:345320.16:2001MAR30		111	forward 3	TM	Transmembrane
10	LG:345320.16:2001MAR30	112	114			Non-Cytosolic
10	LG:345320.16:2001MAR30	115	137	forward 3	TM	Transmembrane
10	LG:345320.16:2001MAR30	138	172	forward 3	TM	Cytosolic
10	LG:345320.16:2001MAR30	173	195	forward 3	TM	Transmembrane
10	LG:345320.16:2001MAR30	196	330	forward 3	TM	Non-Cytosolic
10	LG:345320.16:2001MAR30	331	353	forward 3	TM	Transmembrane
10	LG:345320.16:2001MAR30	354	438	forward 3	TM	Cytosolic
10	LG:345320.16:2001MAR30	439	461	forward 3	TM	Transmembrane
10	LG:345320.16:2001MAR30	462	764	forward 3	TM	Non-Cytosolic
11	LG:350827.10:2001MAR30	1	9	forward 2	TM	Non-Cytosolic
11	LG:350827.10:2001MAR30	10	32	forward 2	TM	Transmembrane
11	LG:350827.10:2001MAR30	33	82	forward 2	TM	Cytosolic
11	LG:350827.10:2001MAR30	83	105	forward 2	TM	Transmembrane
11	LG:350827.10:2001MAR30	106	109	forward 2	TM	Non-Cytosolic
11	LG:350827.10:2001MAR30	110	129	forward 2	TM	Transmembrane
11	LG:350827.10:2001MAR30	130	149	forward 2	TM	Cytosolic
11	LG:350827.10:2001MAR30	150	172	forward 2	TM	Transmembrane
11	LG:350827.10:2001MAR30	173	181	forward 2	TM	Non-Cytosolic
11	LG:350827.10:2001MAR30	182	204	forward 2	TM	Transmembrane
11	LG:350827.10:2001MAR30	205	273	forward 2	TM	Cytosolic
11	LG:350827.10:2001MAR30	274	296	forward 2	TM	Transmembrane
11	LG:350827.10:2001MAR30	297	352	forward 2	TM	Non-Cytosolic
11	LG:350827.10:2001MAR30	1	9	forward 3	TM	Non-Cytosolic
11	LG:350827.10:2001MAR30	10	32	forward 3	TM	Transmembrane
11	LG:350827.10:2001MAR30	33	140	forward 3	TM	Cytosolic
11	LG:350827.10:2001MAR30	141	163	forward 3	TM	Transmembrane
11	LG:350827.10:2001MAR30	164	177	forward 3	TM	Non-Cytosolic
11	LG:350827.10:2001MAR30	178	197	forward 3	TM	Transmembrane
11	LG:350827.10:2001MAR30	198	351	forward 3	TM	Cytosolic
12	LG:399901.5:2001MAR30	1	308	forward 1	TM	Non-Cytosolic
12	LG:399901.5:2001MAR30	309	331	forward 1	TM	Transmembrane
12	LG:399901.5:2001MAR30	332	343	forward 1	TM	Cytosolic
12	LG:399901.5:2001MAR30	344	366	forward 1	TM	Transmembrane
12	LG:399901.5:2001MAR30	367	376	forward 1	TM	Non-Cytosolic
13	LG:404563.1:2001MAR30	1	351	forward 1	TM	Non-Cytosolic
13	LG:404563.1:2001MAR30	352	374	forward 1	TM	Transmembrane
13	LG:404563.1:2001MAR30	375	662	forward 1	TM	Cytosolic
13	LG:404563.1:2001MAR30	663	685	forward 1	TM	Transmembrane
13	LG:404563.1:2001MAR30	686	1103	forward 1	TM	Non-Cytosolic
13	LG:404563.1:2001MAR30	I	33	forward 2	TM	Cytosolic
13	LG:404563.1:2001MAR30	34	51	forward 2	TM	Transmembrane
13						Non-Cytosolic
13	LG:404563.1:2001MAR30	52 895	894 917	forward 2 forward 2	TM TM	Transmembrane
13	LG:404563.1:2001MAR30		999		TM	
	LG:404563.1:2001MAR30	918		forward 2		Cytosolic
13	LG:404563.1:2001MAR30	1000	1022	forward 2	TM	Transmembrane
13	LG:404563.1:2001MAR30	1023	1102	forward 2	TM	Non-Cytosolic
13	LG:404563.1:2001MAR30	1	896	forward 3	TM	Non-Cytosolic
13	LG:404563.1:2001MAR30	897	919	forward 3	TM	Transmembrane

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
13	LG:404563.1:2001MAR30	920	996	forward 3	TM	Cytosolic
13	LG:404563.1:2001MAR30	997	1014	forward 3	TM	Transmembrane
13	LG:404563.1:2001MAR30	1015	1102	forward 3	TM	Non-Cytosolic
14	LG:977812.15:2001MAR30	1	23	forward 1	TM	Cytosolic
14	LG:977812.15:2001MAR30	24	43	forward 1	TM	Transmembrane
14	LG:977812.15:2001MAR30	44	52	forward 1	TM	Non-Cytosolic
14	LG:977812.15:2001MAR30	53	75	forward 1	TM	Transmembrane
· 14	LG:977812.15:2001MAR30	76	94	forward 1	TM	Cytosolic
14	LG:977812.15:2001MAR30	95	112	forward 1	TM	Transmembrane
14	LG:977812.15:2001MAR30	113	115	forward 1	TM	Non-Cytosolic
14	LG:977812.15:2001MAR30	116	138	forward 1	TM	Transmembrane
14	LG:977812.15:2001MAR30	139	158	forward 1	TM	Cytosolic
14	LG:977812.15:2001MAR30	159	177	forward 1	TM	Transmembrane
14	LG:977812.15:2001MAR30	178	210	forward 1	TM	Non-Cytosolic
14	LG:977812.15:2001MAR30	211	228	forward 1	TM	Transmembrane
14	LG:977812.15:2001MAR30	229	247	forward 1	TM	Cytosolic
14	LG:977812.15:2001MAR30	248	270	forward 1	TM	Transmembrane
14	LG:977812.15:2001MAR30	271	284	forward 1	TM	Non-Cytosolic
14	LG:977812.15:2001MAR30	285	307	forward 1	TM	Transmembrane
14	LG:977812.15:2001MAR30	308	339	forward 1	TM	Cytosolic
14	LG:977812.15:2001MAR30	340	357	forward 1	TM	Transmembrane
14	LG:977812.15:2001MAR30	358	446	forward 1	TM	Non-Cytosolic
14	LG:977812.15:2001MAR30	447	466	forward 1	TM	Transmembrane
14	LG:977812.15:2001MAR30	467	482	forward 1	TM	Cytosolic
14	LG:977812.15:2001MAR30	1	89	forward 2	TM	Non-Cytosolic
14	LG:977812.15:2001MAR30	90	107	forward 2	TM	Transmembrane
14	LG:977812.15:2001MAR30	108	113	forward 2	TM	Cytosolic
14-	LG:977812.15:2001MAR30	114	136	forward 2	TM	Transmembrane
14*:	LG:977812.15:2001MAR30	137	150	forward 2	TM	Non-Cytosolic
14	LG:977812.15:2001MAR30	151 174	173 259	forward 2 forward 2	TM	Transmembrane
14 14	LG:977812.15:2001MAR30 LG:977812.15:2001MAR30	260	282	forward 2	TM	Cytosolic
14	LG:977812.15:2001MAR30	283	333	forward 2	TM TM	Transmembrane Non-Cytosolic
14	LG:977812.15:2001MAR30	334	356	forward 2	TM	Transmembrane
14	LG:977812.15:2001MAR30	357	417	forward 2	TM	Cytosolic
14	LG:977812.15:2001MAR30	418	440	forward 2	TM	Transmembrane
14	LG:977812.15:2001MAR30	441	449	forward 2	TM	Non-Cytosolic
14	LG:977812.15:2001MAR30	450	467	forward 2	TM	Transmembrane
14	LG:977812.15:2001MAR30	468	481	forward 2	TM	Cytosolic
14	LG:977812.15:2001MAR30	1	93	forward 3	TM	Cytosolic
14	LG:977812.15:2001MAR30	94	116	forward 3	TM	Transmembrane
14	LG:977812.15:2001MAR30	117	125	forward 3	TM	Non-Cytosolic
14	LG:977812.15:2001MAR30	126	148	forward 3	TM	Transmembrane
14	LG:977812.15:2001MAR30	149	154	forward 3	TM	Cytosolic
14	LG:977812.15:2001MAR30	155	174	forward 3	TM	Transmembrane
14	LG:977812.15:2001MAR30	175	209	forward 3	TM	Non-Cytosolic
14	LG:977812.15:2001MAR30	210	227	forward 3	TM	Transmembrane
14	LG:977812.15:2001MAR30	228	246	forward 3	TM	Cytosolic
14	LG:977812.15:2001MAR30	247	269	forward 3	TM	Transmembrane
14	LG:977812.15:2001MAR30	270	283	forward 3	TM	Non-Cytosolic
14	LG:977812.15:2001MAR30	284	306	forward 3	TM	Transmembrane
14	LG:977812.15:2001MAR30	307	337	forward 3	TM	Cytosolic
14	LG:977812.15:2001MAR30	338	355	forward 3	TM	Transmembrane
14	LG:977812.15:2001MAR30	356	188	forward 3	"TM	Non-Cytosolic
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TAB:	LE 2
Start	Sto

SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
14	LG:977812.15:2001MAR30	382	404	forward 3	TM	Transmembrane
14	LG:977812.15:2001MAR30	405	446	forward 3	TM	Cytosolic
14	LG:977812.15:2001MAR30	447	469	forward 3	TM	Transmembrane
14	LG:977812.15:2001MAR30	470	481	forward 3	TM	Non-Cytosolic
15	LG:983810.1:2001MAR30	1	86	forward 1	· TM	Non-Cytosolic
15	LG:983810.1:2001MAR30	87	109	forward 1	TM	Transmembrane
15	LG:983810.1:2001MAR30	110	115	forward 1	TM	
15	LG:983810.1:2001MAR30		138	forward 1	TM	Cytosolic
		116				Transmembrane
15	LG:983810.1:2001MAR30	139	380	forward 1	TM	Non-Cytosolic
15	LG:983810.1:2001MAR30	381	403	forward 1	TM	Transmembrane
15	LG:983810.1:2001MAR30	404	451	forward 1	TM	Cytosolic
15	LG:983810.1:2001MAR30	452	474	forward 1	TM	Transmembrane
15	LG:983810.1:2001MAR30	475	493	forward 1	TM	Non-Cytosolic
15	LG:983810.1:2001MAR30	494	516	forward 1	TM	Transmembrane
15	LG:983810.1:2001MAR30	517	528	forward 1	TM	Cytosolic
15	LG:983810.1:2001MAR30	529	551	forward 1	TM	Transmembrane
15	LG:983810.1:2001MAR30	552	615	forward 1	TM	Non-Cytosolic
15	LG:983810.1:2001MAR30	616	638	forward 1	TM	Transmembrane
15	LG:983810.1:2001MAR30	639	650	forward 1	TM	Cytosolic
15	LG:983810.1:2001MAR30	651	673	forward 1	TM	Transmembrane
15	LG:983810.1:2001MAR30	674	773	forward 1	TM	Non-Cytosolic
15	LG:983810.1:2001MAR30	1	93	forward 2	TM	Cytosolic
15	LG:983810.1:2001MAR30	94	116	forward 2	TM	Transmembrane
15	LG:983810.1:2001MAR30	117	331	forward 2	TM	Non-Cytosolic
15	LG:983810.1:2001MAR30	332	351	forward 2	TM	Transmembrane
15	LG:983810.1:2001MAR30	352	455	forward 2	TM	Cytosolic
15	LG:983810.1:2001MAR30	: 456	478	forward 2	TM	Transmembrane
15	LG:983810:1:2001MAR30	479	521	forward 2	TM	Non-Cytosolic
15	LG:983810.1:2001MAR30	522	541	forward 2	TM	Transmembrane
15	LG:983810.1:2001MAR30	542	553	forward 2	TM	Cytosolic
15	LG:983810.1:2001MAR30	554	571	forward 2	TM	Transmembrane
15	LG:983810.1:2001MAR30	572	613	forward 2	TM	Non-Cytosolic
15	LG:983810.1:2001MAR30	614	636	forward 2	TM	Transmembrane
15	LG:983810.1:2001MAR30	637	642	forward 2	TM	Cytosolic
15	LG:983810.1:2001MAR30	643	665	forward 2	TM	Transmembrane
15	LG:983810.1:2001MAR30	666	684	forward 2	TM	Non-Cytosolic
15	LG:983810.1:2001MAR30	685	707	forward 2	TM	Transmembrane
15	LG:983810.1:2001MAR30	708	772	forward 2	TM	Cytosolic
15	LG:983810.1:2001MAR30	1	94	forward 3	TM	Non-Cytosolic
15	LG:983810.1:2001MAR30	95	117	forward 3	TM	Transmembrane
15	LG:983810.1:2001MAR30	118	123	forward 3	TM	Cytosolic
15	LG:983810.1:2001MAR30	124	146	forward 3	TM	Transmembrane
15	LG:983810.1:2001MAR30	147	772	forward 3	TM	Non-Cytosolic
16	LG:984488.1:2001MAR30	1	12	forward 1	TM	Cytosolic
16	LG:984488.1:2001MAR30	13	35	forward 1	TM	Transmembrane
16	LG:984488.1:2001MAR30	36	54	forward 1	TM	Non-Cytosolic
16	LG:984488.1:2001MAR30	55	77	forward 1	TM	Transmembrane
16	LG:984488.1:2001MAR30	78	218	forward 1	TM	Cytosolic
16	LG:984488.1:2001MAR30	1	14	forward 3	. TM	Non-Cytosolic
16	LG:984488.1:2001MAR30	15	37	forward 3	TM	Transmembrane
16.	LG:984488.1:2001MAR30	38	218	forward 3	TM	Cytosolic
17	LG:011606.1:2001MAR30	1	92	forward 3	TM	Cytosolic
17	LG:011606.1:2001MAR30	93	115	forward 3	TM	Transmembrane
17	LG:011606.1:2001MAR30	116	129	forward 3	TM	Non-Cytosolic

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		IAD.	LE Z			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
17	LG:011606.1:2001MAR30	130	152	forward 3	TM	Transmembrane
17	LG:011606.1:2001MAR30	153	400	forward 3	TM	Cytosolic
18	LG:025465.5:2001MAR30	1	374	forward 2	TM	Non-Cytosolic
18	LG:025465.5:2001MAR30	375	397	forward 2	TM	Transmembrane
18	LG:025465.5:2001MAR30	398	453	forward 2	TM	Cytosolic
18	LG:025465.5:2001MAR30	454	476	forward 2	TM	Transmembrane
18	LG:025465.5:2001MAR30	477	661	forward 2	TM	Non-Cytosolic
19	LG:025724.10:2001MAR30	1	92	forward 1	TM	Non-Cytosolic
19	LG:025724.10:2001MAR30	93	115	forward 1	TM	Transmembrane
19	LG:025724.10:2001MAR30	116	403	forward 1	TM	Cytosolic
19	LG:025724.10:2001MAR30	404	426	forward 1	TM	Transmembrane
19	LG:025724.10:2001MAR30	427	638	forward 1	TM	Non-Cytosolic
19	LG:025724.10:2001MAR30	639	656	forward 1	TM	Transmembrane
19	LG:025724.10:2001MAR30	657	662	forward 1	TM	Cytosolic
19	LG:025724.10:2001MAR30	663	685	forward 1	TM	Transmembrane
19	LG:025724.10:2001MAR30	686	694	forward 1	TM	Non-Cytosolic
19	LG:025724.10:2001MAR30	695	717	forward 1	TM	Transmembrane
19	LG:025724.10:2001MAR30	718	728	forward 1	TM	Cytosolic
19	LG:025724.10:2001MAR30	729	748	forward 1	TM	Transmembrane
19	LG:025724.10:2001MAR30	749	762	forward 1	TM	Non-Cytosolic
19	LG:025724.10:2001MAR30	763	785	forward 1	TM	Transmembrane
19	LG:025724.10:2001MAR30	786	805	forward 1	TM	Cytosolic
19	LG:025724.10:2001MAR30	806	828	forward 1	TM	Transmembrane
19	LG:025724.10:2001MAR30	829	831	forward 1	TM	Non-Cytosolic
19	LG:025724.10:2001MAR30	832	854	forward 1	TM	Transmembrane
19	LG:025724.10:2001MAR30	855	860	forward 1	TM	Cytosolic
19	LG:025724.10:2001MAR30	861	883	forward 1	TM	Transmembrane
19	LG:025724.10:2001MAR30	· 884	929	forward 1	TM	Non-Cytosolic
19	LG:025724.10:2001MAR30	930	952	forward 1	TM	Transmembrane
19	LG:025724.10:2001MAR30	953	993	forward 1	TM	Cytosolic
19	LG:025724.10:2001MAR30	994	1016	forward 1	TM	Transmembrane
19	LG:025724.10:2001MAR30	1017	1151	forward 1	TM	Non-Cytosolic
19	LG:025724.10:2001MAR30	1	683	forward 2	TM	Non-Cytosolic
19	LG:025724.10:2001MAR30	684	703	forward 2	TM	Transmembrane
19	LG:025724.10:2001MAR30	704	714	forward 2	TM	Cytosolic
19	LG:025724.10:2001MAR30	715	732	forward 2	TM	Transmembrane
19	LG:025724.10:2001MAR30	733	746	forward 2	TM	Non-Cytosolic
19	LG:025724.10:2001MAR30	747	769	forward 2	TM	Transmembrane
19	LG:025724.10:2001MAR30	770	845	forward 2	TM	Cytosolic
19	LG:025724.10:2001MAR30	846	868	forward 2	TM	Transmembrane
19	LG:025724.10:2001MAR30	869	934	forward 2	TM	Non-Cytosolic
19	LG:025724.10:2001MAR30	935	957	forward 2	TM	Transmembrane
19	LG:025724.10:2001MAR30	958	968	forward 2	TM	Cytosolic
19	LG:025724.10:2001MAR30	969	991	forward 2	TM	Transmembrane
19	LG:025724.10:2001MAR30	992	1024	forward 2	TM	Non-Cytosolic
19	LG:025724.10:2001MAR30	1025	1047	forward 2	TM	Transmembrane
19	LG:025724.10:2001MAR30	1048	1151	forward 2	TM	Cytosolic
19	LG:025724.10:2001MAR30	1	9	forward 3	TM	Non-Cytosolic
19	LG:025724.10:2001MAR30	10	28	forward 3	TM	Transmembrane
19	LG:025724.10:2001MAR30	29	74	forward 3	TM	Cytosolic
19	LG:025724.10:2001MAR30	75	97	forward 3	TM	Transmembrane
19	LG:025724.10:2001MAR30	98	396	forward 3	TM	Non-Cytosolic
19	LG:025724.10:2001MAR30	397	419	forward 3	TM	Transmembrane
-19	LG:025724.10:2001MAR30	420	635	forward 3	TM	Cytosolic

TABLE 2

#### Stop Domain Type SEQ D NO: Template ID Start Frame Topology 653 forward 3 TM Transmembrane 19 LG:025724.10:2001MAR30 636 19 654 680 forward 3 TM Non-Cytosolic LG:025724.10:2001MAR30 703 TM 19 LG:025724.10:2001MAR30 681 forward 3 Transmembrane TM 19 LG:025724.10:2001MAR30 704 871 forward 3 Cytosolic 872 889 forward 3 TM Transmembrane 19 LG:025724.10:2001MAR30 19 LG:025724.10:2001MAR30 890 968 forward 3 TM Non-Cytosolic 969 991 forward 3 19 LG:025724.10:2001MAR30 TM Transmembrane 1083 19 LG:025724.10:2001MAR30 992 forward 3 TM Cytosolic 1084 1106 forward 3 TM Transmembrane 19 LG:025724.10:2001MAR30 19 LG:025724.10:2001MAR30 1107 1115 forward 3 TM Non-Cytosolic 19 1116 1135 forward 3 TM LG:025724.10:2001MAR30 Transmembrane 1136 1151 19 LG:025724.10:2001MAR30 forward 3 TM Cytosolic 20 LG:1095426.1:2001MAR30 1 168 forward 1 TM Non-Cytosolic 20 LG:1095426.1:2001MAR30 169 191 forward 1 TM Transmembrane 202 forward 1 20 LG:1095426.1:2001MAR30 192 TM Cytosolic 20 LG:1095426.1:2001MAR30 203 225 forward 1 TM Transmembrane 20 LG:1095426.1:2001MAR30 226 883 forward 1 TM Non-Cytosolic 20 LG:1095426.1:2001MAR30 1 119 forward 3 TM Cytosolic 20 LG:1095426.1:2001MAR30 120 142 forward 3 TM Transmembrane 20 LG:1095426.1:2001MAR30 143 882 forward 3 TM Non-Cytosolic 21 LG:1132418.1:2001MAR30 141 forward 3 TM Cytosolic I 142 21 LG:1132418.1:2001MAR30 164 forward 3 TM Transmembrane 21 LG:1132418.1:2001MAR30 165 260 forward 3 TM Non-Cytosolic 22 LG:1377900.14:2001MAR30 1 . 157 forward 1 TM Cytosolic 22 LG:1377900.14:2001MAR30 158 180 forward 1 TM Transmembrane 22 LG:1377900.14:2001MAR30 181 .199 forward 1 TM Non-Cytosolic 22 LG:1377900.14:2001MAR30 200 222 forward 1 TM Transmembrane 22 230 LG:1377900.14:2001MAR30 223 forward 1 TM Cytosolic 23 LG:1383812.1:2001MAR30 . 1 . 83 forward 2 TM Non-Cytosolic 23 LG:1383812.1:2001MAR30 84 106 forward 2 TM Transmembrane 23 LG:1383812.1:2001MAR30 107 125 forward 2 TM Cytosolic 23 LG:1383812.1:2001MAR30 126 143 forward 2 TM Transmembrane 23 LG:1383812.1:2001MAR30 144 152 forward 2 TM Non-Cytosolic 23 170 LG:1383812.1:2001MAR30 153 forward 2 TM Transmembrane 23 LG:1383812.1:2001MAR30 171 176 forward 2 TM Cytosolic 23 LG:1383812.1:2001MAR30 177 196 forward 2 TM Transmembrane 23 LG:1383812.1:2001MAR30 197 200 forward 2 TM Non-Cytosolic 23 LG:1383812.1:2001MAR30 201 218 forward 2 TM Transmembrane 23 LG:1383812.1:2001MAR30 219 224 forward 2 TM Cytosolic 23 LG:1383812.1:2001MAR30 225 247 forward 2 TM Transmembrane 23 LG:1383812.1:2001MAR30 248 732 forward 2 TM Non-Cytosolic 24 LG:1468687.1:2001MAR30 1 48 forward 1 TM Non-Cytosolic 49 24 LG:1468687.1:2001MAR30 71 forward 1 TM Transmembrane

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LG:1468687.1:2001MAR30

LG:1505513.1:2001MAR30

		TAB	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
25	LG:1505513.1:2001MAR30	50	72	forward 2	TM	Transmembrane
25	LG:1505513.1:2001MAR30	73	110	forward 2	TM	Cytosolic
25	LG:1505513.1:2001MAR30	111	133	forward 2	TM	Transmembrane
25	LG:1505513.1:2001MAR30	134	343	forward 2	TM	Non-Cytosolic
25	LG:1505513.1:2001MAR30	l	14	forward 3	TM	Non-Cytosolic
25	LG:1505513.1:2001MAR30	15	37	forward 3	TM	Transmembrane
25	LG:1505513.1:2001MAR30	38	108	forward 3	TM	Cytosolic
25	LG:1505513.1:2001MAR30	109	126	forward 3	TM	Transmembrane
25	LG:1505513.1:2001MAR30	127	343	forward 3	TM	Non-Cytosolic
26	LG:178823.9:2001MAR30	1	262	forward 1	TM	Non-Cytosolic
26	LG:178823.9:2001MAR30	263	281	forward 1	TM	Transmembrane
26	LG:178823.9:2001MAR30	282	292	forward 1	TM	Cytosolic
26	LG:178823.9:2001MAR30	293	312	forward 1	TM	Transmembrane
26	LG:178823.9:2001MAR30	313	316	forward 1	TM	Non-Cytosolic
26	LG:178823.9:2001MAR30	317	334	forward 1	TM	Transmembrane
26	LG:178823.9:2001MAR30	335	346	forward 1	TM	Cytosolic
26	LG:178823.9:2001MAR30	347	369	forward 1	TM	Transmembrane
26	LG:178823.9:2001MAR30	370	398	forward 1	TM	Non-Cytosolic
26	LG:178823.9:2001MAR30	1	90	forward 2	TM	Cytosolic
26	LG:178823.9:2001MAR30	91	113	forward 2	TM	Transmembrane
26	LG:178823.9:2001MAR30	114	127	forward 2	TM	Non-Cytosolic
26	LG:178823.9:2001MAR30	128	150	forward 2	TM	Transmembrane
26	LG:178823.9:2001MAR30	151	296	forward 2	TM	Cytosolic
26	LG:178823.9:2001MAR30	297	319	forward 2	TM	Transmembrane
26	LG:178823.9:2001MAR30	320	333	forward 2	TM	Non-Cytosolic
26	LG:178823.9:2001MAR30	334		forward 2	TM	Transmembrane
26	LG:178823.9:2001MAR30	352	398	forward 2	TM	Cytosolic
27	LG:198342.3:2001MAR30	ł.	1418	forward 3	TM	Non-Cytosolic
27	LG:198342.3:2001MAR30	1419	1441	forward 3	TM	Transmembrane
27	LG:198342.3:2001MAR30	1442	1545	forward 3	TM	Cytosolic
27	LG:198342.3:2001MAR30	1546	1568	forward 3	TM	Transmembrane
27	LG:198342.3:2001MAR30	1569	1597	forward 3	TM	Non-Cytosolic
28	LG:210672.1:2001MAR30	1	397	forward l	TM	Cytosolic
28	LG:210672.1:2001MAR30	398	420	forward 1	TM	Transmembrane
28	LG:210672.1:2001MAR30	421	468	forward I	TM	Non-Cytosolic
28	LG:210672.1:2001MAR30	469	491	forward 1	TM	Transmembrane
28	LG:210672.1:2001MAR30	492	585	forward 1	TM	Cytosolic
28	LG:210672.1:2001MAR30	1	76	forward 2	TM	Cytosolic
28	LG:210672.1:2001MAR30	77	99	forward 2	TM	Transmembrane
28	LG:210672.1:2001MAR30	100	102	forward 2	TM	Non-Cytosolic
28	LG:210672.1:2001MAR30	103	125	forward 2	TM	Transmembrane
28	LG:210672.1:2001MAR30	126	402	forward 2	TM	Cytosolic
28	LG:210672.1:2001MAR30	403	425	forward 2	TM	Transmembrane
28	LG:210672.1:2001MAR30	426	585	forward 2	TM	Non-Cytosolic
29 20	LG:212823.8:2001MAR30	1	58	forward 1	TM	Non-Cytosolic
29 20	LG:212823.8:2001MAR30	59	81	forward 1	TM	Transmembrane
29 20	LG:212823.8:2001MAR30	82	100	forward 1	TM	Cytosolic
29 20	LG:212823.8:2001MAR30	101	123	forward 1	TM	Transmembrane
29 29	LG:212823.8:2001MAR30	124	569	forward 1	TM	Non-Cytosolic
	LG:212823.8:2001MAR30	570 500	588	forward 1	TM	Transmembrane
29	LG:212823.8:2001MAR30	589	594	forward 1	TM	Cytosolic

595 617 forward 1

618 835 forward 1

1 37 forward 2

TM

TM

TM

Transmembrane

Non-Cytosolic

Cytosolic

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LG:212823.8:2001MAR30

LG:212823.8:2001MAR30

LG:212823.8:2001MAR30

		TABI	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
29	LG:212823.8:2001MAR30	38	60	forward 2	TM	Transmembrane
29	LG:212823.8:2001MAR30	61	64	forward 2	TM	Non-Cytosolic
29	LG:212823.8:2001MAR30	65	82	forward 2	TM	Transmembrane
29	LG:212823.8:2001MAR30	83	88	forward 2	TM	Cytosolic
29	LG:212823.8:2001MAR30	89	111	forward 2	TM	Transmembrane
29	LG:212823.8:2001MAR30	112	835	forward 2	TM	Non-Cytosolic
29	LG:212823.8:2001MAR30	1	9	forward 3	TM	Non-Cytosolic
29	LG:212823.8:2001MAR30	10	32	forward 3	TM	Transmembrane
29	LG:212823.8:2001MAR30	33	51	forward 3	TM	Cytosolic
29	LG:212823.8:2001MAR30	52	74	forward 3	TM	Transmembrane
29	LG:212823.8:2001MAR30	75	587	forward 3	TM	Non-Cytosolic
29	LG:212823.8:2001MAR30	588	610	forward 3	TM	Transmembrane
29	LG:212823.8:2001MAR30	611	834	forward 3	TM	Cytosolic
30	LG:220495.9:2001MAR30	1	14	forward 1	TM	Non-Cytosolic
30	LG:220495.9:2001MAR30	15	37	forward 1	TM	Transmembrane
30	LG:220495.9:2001MAR30	38	446	forward 1	TM	Cytosolic
30	LG:220495.9:2001MAR30	447	465	forward 1	TM	Transmembrane
30	LG:220495.9:2001MAR30	466	484	forward 1	TM	Non-Cytosolic
30	LG:220495.9:2001MAR30	485	507	forward 1	TM	Transmembrane
30	LG:220495.9:2001MAR30	508	567	forward 1	TM	Cytosolic
30	LG:220495.9:2001MAR30	568	590	forward 1	TM	Transmembrane
30	LG:220495.9:2001MAR30	591	599	forward 1	TM	Non-Cytosolic
30	LG:220495.9:2001MAR30	600	622	forward 1	TM	Transmembrane
30	LG:220495.9:2001MAR30	623	737	forward 1	TM	Cytosolic
30	LG:220495.9:2001MAR30	1	40	forward 2	TM	Non-Cytosolic
30	LG:220495.9:2001MAR30	41	63	forward 2	TM	Transmembrane
30	LG:220495.9:2001MAR30	64	163	forward 2	TM	Cytosolic
30	LG:220495.9:2001MAR30	164	183	forward 2	TM	Transmembrane
30	LG:220495.9:2001MAR30	184	192	forward 2	TM	Non-Cytosolic
30	LG:220495.9:2001MAR30	193	210	forward 2	TM	Transmembrane
30	LG:220495.9:2001MAR30	211	247	forward 2	TM	Cytosolic
30	LG:220495.9:2001MAR30	248	270	forward 2	TM	Transmembrane
30	LG:220495.9:2001MAR30	271	284	forward 2	TM	Non-Cytosolic
30	LG:220495.9:2001MAR30	285	307	forward 2	TM	Transmembrane
30	LG:220495.9:2001MAR30	308	486	forward 2	TM	Cytosolic
30	LG:220495.9:2001MAR30	487	509	forward 2	TM	Transmembrane
30	LG:220495.9:2001MAR30	510	737	forward 2	TM	Non-Cytosolic
31	LG:238262.1:2001MAR30	1	327	forward 1	TM	Cytosolic
31	LG:238262.1:2001MAR30	328	350	forward 1	TM	Transmembrane
31	LG:238262.1:2001MAR30	351	369	forward 1	TM	Non-Cytosolic
31	LG:238262.1:2001MAR30	370	392	forward 1	TM	Transmembrane
31	LG:238262.1:2001MAR30	393	405	forward 1	TM	Cytosolic
· 31	LG:238262.1:2001MAR30	1	334	forward 3	TM	Non-Cytosolic
31	LG:238262.1:2001MAR30	335	357	forward 3	TM	Transmembrane
31	LG:238262.1:2001MAR30	358	404	forward 3	TM	Cytosolic
32	LG:239410.21:2001MAR30	1	816	forward 1	TM	Non-Cytosolic
32	LG:239410.21:2001MAR30	817	834	forward 1	TM	Transmembrane
32	LG:239410.21:2001MAR30	835	963	forward 1	TM	Cytosolic
32	LG:239410.21:2001MAR30	1	139	forward 2	TM	Non-Cytosolic
32	LG:239410.21:2001MAR30	140	162	forward 2	TM	Transmembrane
32	LG:239410.21:2001MAR30	163	163	forward 2	TM	Cytosolic
32	LG:239410.21:2001MAR30	164	186	forward 2	TM	Transmembrane
32	LG:239410.21:2001MAR30	187	219	forward 2	TM	Non-Cytosolic
32	LG:239410.21:2001MAR30	220	242	forward 2	TM	Transmembrane

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_	SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
	32	LG:239410.21:2001MAR30	243	267	forward 2	TM	Cytosolic
	32	LG:239410.21:2001MAR30	268	290	forward 2	TM	Transmembrane
	32	LG:239410.21:2001MAR30	291	365	forward 2	TM	Non-Cytosolic
	32	LG:239410.21:2001MAR30	366	388	forward 2	TM	Transmembrane
	32	LG:239410.21:2001MAR30	389	408	forward 2	TM	Cytosolic
	32	LG:239410.21:2001MAR30	409	431	forward 2	TM	Transmembrane
	32	LG:239410.21:2001MAR30	432	470	forward 2	TM	Non-Cytosolic
	32	LG:239410.21:2001MAR30	471	493	forward 2	TM	Transmembrane
	32	LG:239410.21:2001MAR30	494	508	forward 2	TM	Cytosolic
	32	LG:239410.21:2001MAR30	509	531	forward 2	TM	Transmembrane
	32	LG:239410.21:2001MAR30	532	550	forward 2	TM	Non-Cytosolic
	32	LG:239410.21:2001MAR30	551	573	forward 2	TM	Transmembrane
	32	LG:239410.21:2001MAR30	574	963	forward 2	TM	Cytosolic
	33	LG:245854.7:2001MAR30	1	68	forward 3	TM	Cytosolic
	33	LG:245854.7:2001MAR30	69	88	forward 3	TM	Transmembrane
	33	LG:245854.7:2001MAR30	89	1346	forward 3	TM	Non-Cytosolic
	34	LG:294697.1:2001MAR30	1	61	forward 1	TM	Cytosolic
	34	LG:294697.1:2001MAR30	62	84	forward 1	TM	Transmembrane
	34	LG:294697.1:2001MAR30	85	225	forward 1	TM	Non-Cytosolic
	34	LG:294697.1:2001MAR30	1	85	forward 3	TM	Cytosolic
	34	LG:294697.1:2001MAR30	86	105	forward 3	TM	Transmembrane
	34	LG:294697.1:2001MAR30	106	178	forward 3	TM	Non-Cytosolic
	34	LG:294697.1:2001MAR30	179	201	forward 3	TM	Transmembrane
	34	LG:294697.1:2001MAR30	202	224	forward 3	TM	Cytosolic
	35	LG:345884.1:2001MAR30	1	28	forward 1	TM	Cytosolic
	. 35	LG:345884.1:2001MAR30	29	51	forward 1	TM	Transmembrane
	35	LG:345884.1:2001MAR30	. 52	192	forward 1	TM	Non-Cytosolic
	36	LG:400095.15:2001MAR30	1	970	forward 1	TM	Non-Cytosolic
	· 36	LG:400095.15:2001MAR30	971	993	forward 1	TM	Transmembrane
	36	LG:400095.15:2001MAR30	994	997	forward 1	TM	Cytosolic
	36	LG:400095.15:2001MAR30	998	1015	forward 1	TM	Transmembrane
	36	LG:400095.15:2001MAR30	1016	1013	forward 1	TM	Non-Cytosolic
	36	LG:400095.15:2001MAR30	1010	1036	forward 1	TM	Transmembrane
	36	LG:400095.15:2001MAR30	1019	1062	forward 1	TM	Cytosolic
	37	LG:402180.1:2001MAR30	1037	162	forward 1	TM	Cytosolic
	37	LG:402180.1:2001MAR30	163	185	forward 1	TM	Transmembrane
	37 <sup>-</sup>	LG:402180.1:2001MAR30	186	204	forward 1	TM	Non-Cytosolic
	37	LG:402180.1:2001MAR30	205	227	forward 1	TM	Transmembrane
	37	LG:402180.1:2001MAR30	228	283	forward 1	TM	Cytosolic
	37	LG:402180.1:2001MAR30	284	306	forward 1	TM	Transmembrane
	37	LG:402180.1:2001MAR30	307	325	forward 1	TM	Non-Cytosolic
	37	LG:402180.1:2001MAR30	326	348	forward 1	TM	Transmembrane
	37	LG:402180.1:2001MAR30	349	560	forward 1	TM	Cytosolic
	37	LG:402180.1:2001MAR30	561	583	forward 1	TM	Transmembrane
	37	LG:402180.1:2001MAR30	584	614	forward 1	TM	
	37 37	LG:402180.1:2001MAR30	615	637		TM	Non-Cytosolic
	37	LG:402180.1:2001MAR30	638	658	forward 1	TM	Transmembrane
	37 37				forward 1		Cytosolic
	37 37	LG:402180.1:2001MAR30	1 319	318	forward 2	TM	Non-Cytosolic
	37 37	LG:402180.1:2001MAR30		341 562	forward 2	TM	Transmembrane
		LG:402180.1:2001MAR30	342 562	562	forward 2	TM	Cytosolic
	37 37	LG:402180.1:2001MAR30	563	585	forward 2	TM	Transmembrane
	3 <i>1</i> 38	LG:402180.1:2001MAR30	586	658	forward 2	TM ·	Non-Cytosolic
		LG:403401.1:2001MAR30	1	176	forward 1	TM	Cytosolic
	38	LG:403401.1:2001MAR30	177	199	forward 1	TM	Transmembrane
			91				

		TABI	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
38	LG:403401.1:2001MAR30	200	218	forward 1	TM	Non-Cytosolic
38	LG:403401.1:2001MAR30	219	238	forward 1	TM	Transmembrane
38	LG:403401.1:2001MAR30	239	250	forward 1	TM	Cytosolic
38	LG:403401.1:2001MAR30	251	273	forward 1	TM	Transmembrane
38	LG:403401.1:2001MAR30	274	350	forward 1	TM	Non-Cytosolic
38	LG:403401.1:2001MAR30	1	14	forward 2	TM	Non-Cytosolic
38	LG:403401.1:2001MAR30	15	37	forward 2	TM	Transmembrane
38	LG:403401.1:2001MAR30	38	176	forward 2	TM	Cytosolic
38	LG:403401.1:2001MAR30	177	199	forward 2	TM	Transmembrane
38	LG:403401.1:2001MAR30	200	213	forward 2	TM	Non-Cytosolic
38	LG:403401.1:2001MAR30	214	236	forward 2	TM	Transmembrane
38	LG:403401.1:2001MAR30	237	350	forward 2	TM	Cytosolic
38	LG:403401.1:2001MAR30	1	138	forward 3	TM	Cytosolic
38	LG:403401.1:2001MAR30	139	161	forward 3	TM	Transmembrane
38	LG:403401.1:2001MAR30	162	192	forward 3	TM	Non-Cytosolic
38	LG:403401.1:2001MAR30	193	215	forward 3	TM	Transmembrane
38	LG:403401.1:2001MAR30	216	226	forward 3	TM ,	Cytosolic
38	LG:403401.1:2001MAR30	227	249	forward 3	TM	Transmembrane
38	LG:403401.1:2001MAR30	250	350	forward 3	TM	Non-Cytosolic
39	LG:411327.29:2001MAR30	1	97	forward 1	TM	Cytosolic
39	LG:411327.29:2001MAR30	98	120	forward 1	TM	Transmembrane
39	LG:411327.29:2001MAR30	121	371	forward 1	TM	Non-Cytosolic
40	LG:417464.10:2001MAR30	1	19	forward 1	TM	Non-Cytosolic
40	LG:417464.10:2001MAR30	20	42	forward 1	TM	Transmembrane
40	LG:417464.10:2001MAR30	43	298	forward 1	TM	Cytosolic
40	LG:417464.10:2001MAR30	299	321	forward 1	· TM	Transmembrane
.40	LG:417464.10:2001MAR30	322	340	forward 1	TM	Non-Cytosolic
40	LG:417464.10:2001MAR30	341	363	forward 1	TM	Transmembrane
40	LG:417464.10:2001MAR30	364	418	forward 1	TM	Cytosolic
40	LG:417464.10:2001MAR30	1	287	forward 2	TM	Non-Cytosolic
40	LG:417464.10:2001MAR30	288	310	forward 2	TM	Transmembrane
40	LG:417464.10:2001MAR30	311	330	forward 2	TM	Cytosolic
40	LG:417464.10:2001MAR30	331	353	forward 2	TM	Transmembrane
40	LG:417464.10:2001MAR30	354	367	forward 2	TM	Non-Cytosolic
40	LG:417464.10:2001MAR30	368	390	forward 2	TM	Transmembrane
40	LG:417464.10:2001MAR30	391	418	forward 2	TM	Cytosolic
40	LG:417464.10:2001MAR30	1	1	forward 3	TM	Cytosolic
40	LG:417464.10:2001MAR30	2	24	forward 3	TM	Transmembrane
40	LG:417464.10:2001MAR30	25	95	forward 3	TM	Non-Cytosolic
40	LG:417464.10:2001MAR30	96	118	forward 3	TM	Transmembrane
40	LG:417464.10:2001MAR30	119	328	forward 3	TM	Cytosolic
40	LG:417464.10:2001MAR30	329	351	forward 3	TM	Transmembrane
40	LG:417464.10:2001MAR30	352	417	forward 3	TM	Non-Cytosolic
41	LG:481997.1:2001MAR30	1	82	forward 1	TM	Cytosolic
41	LG:481997.1:2001MAR30	83	105	forward 1	TM	Transmembrane
41	LG:481997.1:2001MAR30	106	152	forward 1	TM	Non-Cytosolic
41	LG:481997.1:2001MAR30	153	175	forward 1	TM	Transmembrane
41	LG:481997.1:2001MAR30	176 254	253	forward 1 forward 1	TM	Cytosolic Transmembrane
41	LG:481997.1:2001MAR30	254	276		TM	Non-Cytosolic
41 41	LG:481997.1:2001MAR30	277 280	279 302	forward 1	TM TM	Transmembrane
41	LG:481997.1:2001MAR30	303	302 383	forward 1	TM	Cytosolic
, 41 41	LG:481997.1:2001MAR30 LG:481997.1:2001MAR30		383 81	forward 1 forward 3	TM TM	Cytosolic
41	LG:481997.1:2001MAR30	1 82	104	forward 3	TM	Transmembrane
41	50.401337.1.2001MAK30	04		TOI WALG 3	1 1/1	Transmomerale

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
41	LG:481997.1:2001MAR30	105	382	forward 3	TM	Non-Cytosolic
42	LG:979304.7:2001MAR30	1	319	forward 2	TM	Non-Cytosolic
42	LG:979304.7:2001MAR30	320	342	forward 2	TM	Transmembrane
42	LG:979304.7:2001MAR30	343	354	forward 2	TM	Cytosolic
42	LG:979304.7:2001MAR30	355	377	forward 2	TM	Transmembrane
42	LG:979304.7:2001MAR30	378	391	forward 2	TM	Non-Cytosolic
42	LG:979304.7:2001MAR30	392	414	forward 2	TM	Transmembrane
42	LG:979304.7:2001MAR30	415	426	forward 2	TM	Cytosolic
43	LG:997964.1:2001MAR30	21	110	forward 3	SP	
43	LG:997964.1:2001MAR30	1	356	forward 3	TM	Cytosolic
43	LG:997964.1:2001MAR30	357	379	forward 3	TM	Transmembrane
43	LG:997964.1:2001MAR30	380	1082	forward 3	TM	Non-Cytosolic
44	LG:998845.1:2001MAR30	1	66	forward 2	TM	Non-Cytosolic
44	LG:998845.1:2001MAR30	67	89	forward 2	TM	Transmembrane
44	LG:998845.1:2001MAR30	90	281	forward 2	TM	Cytosolic
44	LG:998845.1:2001MAR30	1	67	forward 3	TM	Non-Cytosolic
44	LG:998845.1:2001MAR30	68	90	forward 3	TM	Transmembrane
44	LG:998845.1:2001MAR30	91	102	forward 3	TM	Cytosolic
44	LG:998845.1:2001MAR30	103	125	forward 3	TM	Transmembrane
44	LG:998845.1:2001MAR30	126	185	forward 3	TM	Non-Cytosolic
44	LG:998845.1:2001MAR30	186	208	forward 3	TM	Transmembrane
44	LG:998845.1:2001MAR30	209	281	forward 3	TM	Cytosolic
45	LG:000014.1:2001MAR30	1	92	forward 1	TM	Cytosolic
45	LG:000014.1:2001MAR30	93	115	forward 1	TM	Transmembrane
45	LG:000014.1:2001MAR30	116	156	forward 1	TM	Non-Cytosolic
45	LG:000014.1:2001MAR30	157	179	forward 1	TM	Transmembrane
45	LG:000014.1:2001MAR30	. 180	198	forward 1	TM	Cytosolic
45	LG:000014.1:2001MAR30	199	221	forward 1	TM	Transmembrane
45	LG:000014.1:2001MAR30	222	300	forward 1	TM	Non-Cytosolic
45	LG:000014.1:2001MAR30	301	323	forward 1	TM	Transmembrane
45	LG:000014.1:2001MAR30	324	327	forward 1	TM	Cytosolic
45	LG:000014.1:2001MAR30	328	347	forward 1	TM	Transmembrane
45	LG:000014.1:2001MAR30	348	363	forward 1	TM	Non-Cytosolic
45	LG:000014.1:2001MAR30	1	183	forward 2	TM	Non-Cytosolic
45	LG:000014.1:2001MAR30	184	206	forward 2	TM	Transmembrane
45	LG:000014.1:2001MAR30	207	276	forward 2	TM	Cytosolic
45	LG:000014.1:2001MAR30	277	296	forward 2	TM	Transmembrane
45	LG:000014.1:2001MAR30	297	363	forward 2	TM	Non-Cytosolic
45	LG:000014.1:2001MAR30	1	94	forward 3	TM	Cytosolic
45	LG:000014.1:2001MAR30	95	117	forward 3	TM	Transmembrane
45	LG:000014.1:2001MAR30	118	120	forward 3	TM	Non-Cytosolic
45	LG:000014.1:2001MAR30	121	140	forward 3	TM	Transmembrane
45	LG:000014.1:2001MAR30	141	160	forward 3	TM	Cytosolic
45	LG:000014.1:2001MAR30	161	183	forward 3	TM	Transmembrane
45	LG:000014.1:2001MAR30	184	363	forward 3	TM	Non-Cytosolic
46	LG:000290.9:2001MAR30	1	559	forward 2	TM	Non-Cytosolic
46	LG:000290.9:2001MAR30	560	582	forward 2	TM	Transmembrane
46	LG:000290.9:2001MAR30	583	617	forward 2	TM	Cytosolic
47	LG:001923.1:2001MAR30	1	109	forward 1	TM	Cytosolic
47	LG:001923.1:2001MAR30	110	132	forward 1	TM	Transmembrane
47	LG:001923.1:2001MAR30	133	141	forward 1	TM	Non-Cytosolic
47	LG:001923.1:2001MAR30	142	164	forward 1	TM	Transmembrane
47	LG:001923.1:2001MAR30	165	176	forward 1	TM	Cytosolic
47	LG:001923.1:2001MAR30	177	199	forward 1	TM	Transmembrane
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		TAB	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
47	LG:001923.1:2001MAR30	200	265	forward 1	TM	Non-Cytosolic
47	LG:001923.1:2001MAR30	266	288	forward 1	TM	Transmembrane
47	LG:001923.1:2001MAR30	289	461	forward 1	TM	Cytosolic
47	LG:001923.1:2001MAR30	462	484	forward 1	TM	Transmembrane
47	LG:001923.1:2001MAR30	485	503	forward 1	TM	Non-Cytosolic
47	LG:001923.1:2001MAR30	504	526	forward 1	TM	Transmembrane
47	LG:001923.1:2001MAR30	527	532	forward 1	TM	Cytosolic
47	LG:001923.1:2001MAR30	533	555	forward 1	TM	Transmembrane
47	LG:001923.1:2001MAR30	556	590	forward 1	TM	Non-Cytosolic
47	LG:001923.1:2001MAR30	1	135	forward 3	TM	Non-Cytosolic
47	LG:001923.1:2001MAR30	136	158	forward 3	TM	Transmembrane
47	LG:001923.1:2001MAR30	159	164	forward 3	TM	Cytosolic
47	LG:001923.1:2001MAR30	165	187	forward 3	TM	Transmembrane
47	LG:001923.1:2001MAR30	188	201	forward 3	TM	Non-Cytosolic
47	LG:001923.1:2001MAR30	202	221	forward 3	TM	Transmembrane
47	LG:001923.1:2001MAR30	222	241	forward 3	TM	Cytosolic
47	LG:001923.1:2001MAR30	242	264	forward 3	TM	Transmembrane
47	LG:001923.1:2001MAR30	265	589	forward 3	TM	Non-Cytosolic
48	LG:008606.21:2001MAR30	1	160	forward 1	TM	Cytosolic
48	LG:008606.21:2001MAR30	161	183	forward 1	TM	Transmembrane
48	LG:008606.21:2001MAR30	184	202	forward 1	TM	Non-Cytosolic
48	LG:008606.21:2001MAR30	203	225	forward 1	TM	Transmembrane
48	LG:008606.21:2001MAR30	226	401	forward 1	TM	Cytosolic
48	LG:008606.21:2001MAR30	402	424	forward 1	TM	Transmembrane
48	LG:008606.21:2001MAR30	425	443	forward 1	TM	Non-Cytosolic
48	LG:008606.21:2001MAR30	· 444	466	forward 1	TM	Transmembrane
48	LG:008606.21:2001MAR30	467	668	forward 1	TM	Cytosolic
48	LG:008606.21:2001MAR30	1	404	forward 2	TM	Non-Cytosolic
48	LG:008606.21:2001MAR30	405	427	forward 2	TM	Transmembrane
48	LG:008606.21:2001MAR30	428	439	forward 2	TM	Cytosolic
48	LG:008606.21:2001MAR30	440	462	forward 2	TM	Transmembrane
48	LG:008606.21:2001MAR30	463	667	forward 2	TM	Non-Cytosolic
48	LG:008606.21:2001MAR30	1	169	forward 3	TM	Cytosolic
48	LG:008606.21:2001MAR30	170	192	forward 3	TM	Transmembrane
48	LG:008606.21:2001MAR30	193	201	forward 3	TM	Non-Cytosolic
48	LG:008606.21:2001MAR30	202	224	forward 3	TM	Transmembrane
48	LG:008606.21:2001MAR30	225	230	forward 3	TM	Cytosolic
48	LG:008606.21:2001MAR30	231	253	forward 3	TM	Transmembrane
48	LG:008606.21:2001MAR30	254	410	forward 3	TM	Non-Cytosolic
48	LG:008606.21:2001MAR30	411	433	forward 3	TM	Transmembrane
48	LG:008606.21:2001MAR30	434	439	forward 3	TM	Cytosolic
48	LG:008606.21:2001MAR30	440	462	forward 3	TM.	Transmembrane
48	LG:008606.21:2001MAR30	463	667	forward 3	TM	Non-Cytosolic
49	LG:009699.32:2001MAR30	1	6	forward 1	TM	Cytosolic
49	LG:009699.32:2001MAR30	7	25	forward 1	TM	Transmembrane
49	LG:009699.32:2001MAR30	26	127	forward 1	TM	Non-Cytosolic
49	LG:009699.32:2001MAR30	128	150	forward 1	TM	Transmembrane
49	LG:009699.32:2001MAR30	151	180	forward 1	TM	Cytosolic
49	LG:009699.32:2001MAR30	1	128	forward 2	TM	Non-Cytosolic
49	LG:009699.32:2001MAR30	129	151	forward 2	TM	Transmembrane
49	LG:009699.32:2001MAR30	152	180	forward 2	TM	Cytosolic
50	LG:016723.6:2001MAR30	1	187	forward 1	TM	Cytosolic
50	LG:016723.6:2001MAR30	188	205	forward 1	TM	Transmembrane
50	LG:016723.6:2001MAR30	206	276	forward 1	TM	Non-Cytosolic

TABLE 2
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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
51	LG:017126.5:2001MAR30	1	310	forward 1	TM	Cytosolic
51	LG:017126.5:2001MAR30	311	333	forward 1	TM	Transmembrane
51	LG:017126.5:2001MAR30	334	360	forward 1	TM	Non-Cytosolic
51	LG:017126.5:2001MAR30	361	383	forward !	' TM	Transmembrane
51	LG:017126.5:2001MAR30	384	413	forward 1	TM	Cytosolic
51	LG:017126.5:2001MAR30	414	433	forward 1	TM	Transmembrane
51	LG:017126.5:2001MAR30	434	952	forward 1	TM	Non-Cytosolic
52	LG:019362.10:2001MAR30	1	20	forward 1	TM	Cytosolic
52	LG:019362.10:2001MAR30	21	40	forward 1	TM	Transmembrane
52 .	LG:019362.10:2001MAR30	41	49	forward 1	TM	Non-Cytosolic
52	LG:019362.10:2001MAR30	50	72	forward 1	TM	Transmembrane
52	LG:019362.10:2001MAR30	73	304	forward 1	TM	Cytosolic
52	LG:019362.10:2001MAR30	305	323	forward 1	TM	Transmembrane
52	LG:019362.10:2001MAR30	324	337	forward 1	TM	Non-Cytosolic
52	LG:019362.10:2001MAR30	338	357	forward 1	TM	Transmembrane
52	LG:019362.10:2001MAR30	358	377	forward 1	TM	Cytosolic
52	LG:019362.10:2001MAR30	378	400	forward 1	TM	Transmembrane
52	LG:019362.10:2001MAR30	401	494	forward 1	TM	Non-Cytosolic
52	LG:019362.10:2001MAR30	495	514	forward 1	TM	Transmembrane
52	LG:019362.10:2001MAR30	515	534	forward 1	TM	Cytosolic
52	LG:019362.10:2001MAR30	535	557	forward 1	TM	Transmembrane
52	LG:019362.10:2001MAR30	558	572	forward 1	TM	Non-Cytosolic
52	LG:019362.10:2001MAR30	1	47	forward 2	TM	Non-Cytosolic
52	LG:019362:10:2001MAR30	48	70	forward 2	TM	Transmembrane
52	LG:019362.10:2001MAR30	71	377	forward 2	TM	Cytosolic
52	LG:019362.10:2001MAR30	378	397	forward 2	· TM	Transmembrane
52	LG:019362.10:2001MAR30	398	463	forward 2	TM	Non-Cytosolic
52	LG:019362.10:2001MAR30	464	483	forward 2	TM	Transmembrane
52	LG:019362.10:2001MAR30	484	495	forward 2	TM	Cytosolic
52	LG:019362.10:2001MAR30	496	518	forward 2	TM	Transmembrane
52	LG:019362.10:2001MAR30	519	546	forward 2	TM	Non-Cytosolic
52	LG:019362.10;2001MAR30	547	569	forward 2	TM	Transmembrane
52	LG:019362.10:2001MAR30	570	571	forward 2	TM	Cytosolic
53	LG:022183.1:2001MAR30	1	19	forward 2	TM	Cytosolic
53	LG:022183.1:2001MAR30	20	42	forward 2	TM	Transmembrane
53	LG:022183.1:2001MAR30	43	272	forward 2	TM	Non-Cytosolic
54	LG:028493.1:2001MAR30	1	521	forward 3	TM	Non-Cytosolic
54 54		522	544	forward 3		Transmembrane
	LG:028493.1:2001MAR30		689		TM	
54 55	LG:028493.1:2001MAR30	545		forward 3	TM	Cytosolic
55 55	LG:034197.1:2001MAR30	1	12	forward 3	TM	Cytosolic
55	LG:034197.1:2001MAR30	13	35	forward 3	TM	Transmembrane
55	LG:034197.1:2001MAR30	36	139	forward 3		Non-Cytosolic
55	LG:034197.1:2001MAR30	140	162	forward 3	TM	Transmembrane
55	LG:034197.1:2001MAR30	163	192	forward 3	TM	Cytosolic
56	LG:054096.31:2001MAR30	1	723	forward 1	TM	Non-Cytosolic
56	LG:054096.31:2001MAR30	724	746	forward 1	TM	Transmembrane
56	LG:054096.31:2001MAR30	747	752	forward 1	TM	Cytosolic
56	LG:054096.31:2001MAR30	753	775	forward 1	TM	Transmembrane
56	LG:054096.31:2001MAR30	776	789	forward 1	TM	Non-Cytosolic
56	LG:054096.31:2001MAR30	790	812	forward 1	TM	Transmembrane
56	LG:054096.31:2001MAR30	813	844	forward 1	TM	Cytosolic
57	LG:054807.3:2001MAR30	1	253	forward 1	TM	Non-Cytosolic
57	LG:054807.3:2001MAR30	254	276	forward 1	TM	Transmembrane
57	LG:054807.3:2001MAR30	277	330	forward I	TM	Cytosolic
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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
57	LG:054807.3:2001MAR30	331	350	forward 1	TM	Transmembrane
57	LG:054807.3:2001MAR30	351	353	forward 1	TM	Non-Cytosolic
57	LG:054807.3:2001MAR30	354	373	forward 1	TM	Transmembrane
57	LG:054807.3:2001MAR30	374	385	forward 1	TM	Cytosolic
57	LG:054807.3:2001MAR30	386	408	forward 1	TM	Transmembrane
57	LG:054807.3:2001MAR30	409	458	forward 1	TM	Non-Cytosolic
57	LG:054807.3:2001MAR30	459	481	forward 1	TM	Transmembrane
57	LG:054807.3:2001MAR30	482	551	forward 1	TM	Cytosolic
57	LG:054807.3:2001MAR30	552	574	forward 1	TM	Transmembrane
57	LG:054807.3:2001MAR30	575	577	forward 1	TM	Non-Cytosolic
57	LG:054807.3:2001MAR30	578	600	forward 1	TM	Transmembrane
57	LG:054807.3:2001MAR30	601	694	forward 1	TM	Cytosolic
57	LG:054807.3:2001MAR30	695	717	forward 1	TM	Transmembrane
57	LG:054807.3:2001MAR30	718	815	forward 1	TM	Non-Cytosolic
. 57	LG:054807.3:2001MAR30	1	426	forward 2	TM	Non-Cytosolic
57	LG:054807.3:2001MAR30	427	449	forward 2	TM	Transmembrane
57	LG:054807.3:2001MAR30	450	461	forward 2	TM	Cytosolic
57	LG:054807.3:2001MAR30	462	484	forward 2	TM	Transmembrane
57	LG:054807.3:2001MAR30	485	692	forward 2	TM	Non-Cytosolic
57	LG:054807.3:2001MAR30	693	710	forward 2	TM	Transmembrane
57	LG:054807.3:2001MAR30	711	751	forward 2	TM	Cytosolic
57	LG:054807.3:2001MAR30	752	774	forward 2	TM	Transmembrane
57	LG:054807.3:2001MAR30	775	788	forward 2	TM	Non-Cytosolic
57	LG:054807.3:2001MAR30	789 .	808	forward 2	TM	Transmembrane
57	LG:054807.3:2001MAR30	809	814	forward 2	TM	Cytosolic
57	LG:054807.3:2001MAR30	. 1	177	forward 3	TM	Cytosolic
57	LG:054807.3:2001MAR30	178	197	forward 3	TM	Transmembrane
57	LG:054807.3:2001MAR30	198	247	forward 3	TM	Non-Cytosolic
57	LG:054807.3:2001MAR30	248	270	forward 3	TM	Transmembrane
57	LG:054807.3:2001MAR30	271	327	forward 3	TM	Cytosolic
57	LG:054807.3:2001MAR30	328	350	forward 3	TM	Transmembrane
57	LG:054807.3:2001MAR30	351	433	forward 3	TM	Non-Cytosolic
57	LG:054807.3:2001MAR30	434	456	forward 3	TM	Transmembrane
<b>5</b> 7	LG:054807.3:2001MAR30	457	462	forward 3	TM	Cytosolic
57	LG:054807.3:2001MAR30	463	485	forward 3	TM	Transmembrane
57	LG:054807.3:2001MAR30	486	489	forward 3	TM	Non-Cytosolic
57	LG:054807.3:2001MAR30	490	512	forward 3	TM	Transmembrane
57	LG:054807.3:2001MAR30	513	550	forward 3	TM	Cytosolic
57	LG:054807.3:2001MAR30	551	573	forward 3	TM	Transmembrane
57	LG:054807.3:2001MAR30	574	576	forward 3	TM	Non-Cytosolic
57	LG:054807.3:2001MAR30	577	596	forward 3	TM	Transmembrane
57	LG:054807.3:2001MAR30	597	692	forward 3	TM	Cytosolic
57	LG:054807.3:2001MAR30	693	712	forward 3	TM	Transmembrane
57	LG:054807.3:2001MAR30	713	814	forward 3	TM	Non-Cytosolic
58	LG:065873.12:2001MAR30	1	38	forward 1	TM	Cytosolic
58	LG:065873.12:2001MAR30	39	58	forward 1	TM	Transmembrane
58	LG:065873.12:2001MAR30	59	925	forward 1	TM	Non-Cytosolic
58	LG:065873.12:2001MAR30	1	19	forward 3	TM	Cytosolic
58	LG:065873.12:2001MAR30	20	42	forward 3	TM	Transmembrane
58	LG:065873.12:2001MAR30	43	867	forward 3	TM	Non-Cytosolic
58	LG:065873.12:2001MAR30	868	890	forward 3	TM	Transmembrane
58	LG:065873.12:2001MAR30	891	924	forward 3	TM	Cytosolic
59 50	LG:083814.6:2001MAR30	1	660	forward 1	TM	Non-Cytosolic
59	LG:083814.6:2001MAR30	661	680	forward 1	TM	Transmembrane

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		TAB	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
59	LG:083814.6:2001MAR30	681	714	forward 1	TM	Cytosolic
59	LG:083814.6:2001MAR30	715	733	forward 1	TM	Transmembrane
59	LG:083814.6:2001MAR30	734	741	forward 1	TM	Non-Cytosolic
59	LG:083814.6:2001MAR30	1	681	forward 3	TM	Non-Cytosolic
59	LG:083814.6:2001MAR30	682	701	forward 3	TM	Transmembrane
59	LG:083814.6:2001MAR30	702	712	forward 3	TM	Cytosolic
59	LG:083814.6:2001MAR30	713	730	forward 3	TM	Transmembrane
59	LG:083814.6:2001MAR30	731	740	forward 3	TM	Non-Cytosolic
60	LG:093477.1:2001MAR30	1	12	forward 2	TM	Cytosolic
60	LG:093477.1:2001MAR30	13	35	forward 2	TM	Transmembrane
60	LG:093477.1:2001MAR30	36	291	forward 2	TM	Non-Cytosolic
60	LG:093477.1:2001MAR30	1	6	forward 3	· TM	Cytosolic
60	LG:093477.1:2001MAR30	7	29	forward 3	TM	Transmembrane
60	LG:093477.1:2001MAR30	30	291	forward 3	TM	Non-Cytosolic
61	LG:099572.12:2001MAR30	1	803	forward 2	TM	Non-Cytosolic
61	LG:099572.12:2001MAR30	804	826	forward 2	TM	Transmembrane
61	LG:099572.12:2001MAR30	827	960	forward 2	TM	Cytosolic
61	LG:099572.12:2001MAR30	961	975	forward 2	TM	Transmembrane
61	LG:099572.12:2001MAR30	976	984	forward 2	TM	Non-Cytosolic
61	LG:099572.12:2001MAR30	985	1007	forward 2	TM	Transmembrane
61	LG:099572.12:2001MAR30	· 1008	1043	forward 2	TM	Cytosolic
61	LG:099572.12:2001MAR30	1044	1066	forward 2	TM	Transmembrane
61	LG:099572.12:2001MAR30	1067	1510	forward 2	TM	Non-Cytosolic
61	LG:099572.12:2001MAR30	1511	,1533	forward 2	TM	Transmembrane
61	LG:099572.12:2001MAR30	1534	1546	forward 2	TM	Cytosolic
61	LG:099572.12:2001MAR30	. 1	1008	forward 3	TM	Non-Cytosolic
61	LG:099572.12:2001MAR30	. 1009	1031	forward 3	TM	Transmembrane
61	LG:099572.12:2001MAR30	1032	1089	forward 3	TM	Cytosolic
61	LG:099572.12:2001MAR30	1090	1112	forward 3	TM	Transmembrane
61	LG:099572.12:2001MAR30	1113	1546	forward 3	TM	Non-Cytosolic
62	LG:100396.31:2001MAR30	1	247	forward 1	TM	Non-Cytosolic
62	LG:100396.31:2001MAR30	248	265	forward 1	TM	Transmembrane
62	LG:100396.31:2001MAR30	266	318	forward 1	TM	Cytosolic
62	LG:100396.31:2001MAR30	319	338	forward 1	TM	Transmembrane
62	LG:100396.31:2001MAR30	339	373	forward 1	TM	Non-Cytosolic
62	LG:100396.31:2001MAR30	374	393	forward 1	TM	Transmembrane
62	LG:100396.31:2001MAR30	394	394	forward 1	TM	Cytosolic
62	LG:100396.31:2001MAR30	1	.361	forward 2	TM	Non-Cytosolic
62	LG:100396.31:2001MAR30	362	393	forward 2	TM	Transmembrane
62	LG:100396.31:2001MAR30	394	394	forward 2	TM	Cytosolic
63	LG:1026903.5:2001MAR30	1	84	forward 1	TM	Cytosolic
63	LG:1026903.5:2001MAR30	85	107	forward 1	TM	Transmembrane
63	LG:1026903.5:2001MAR30	108	452	forward 1	TM	Non-Cytosolic
64	LG:1060168.6:2001MAR30	1	147	forward 1	' TM	Cytosolic
65	LG:1086906.41:2001MAR30	1	417	forward 2	TM	Non-Cytosolic
65	LG:1086906.41:2001MAR30	418	435	forward 2	TM	Transmembrane
65	LG:1086906.41:2001MAR30	436	551	forward 2	TM	Cytosolic
65	LG:1086906.41:2001MAR30	1	412	forward 3	TM	Non-Cytosolic
65	LG:1086906.41:2001MAR30	413	435	forward 3	TM	Transmembrane
65	LG:1086906.41:2001MAR30	436	551	forward 3	TM	Cytosolic
66	LG:1089326.18:2001MAR30	1	73	forward 2	TM	Cytosolic
66	LG:1089326.18:2001MAR30	74	96	forward 2	TM	Transmembrane
66	LG:1089326.18:2001MAR30	97	807	forward 2	TM	Non-Cytosolic
67	LG:1090862.32:2001MAR30	1	47	forward 3	TM	Cytosolic
		97	•			•

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
67	LG:1090862.32:2001MAR30	48	70	forward 3	TM	Transmembrane
67	LG:1090862.32:2001MAR30	71	568	forward 3	TM	Non-Cytosolic
68	LG:1091941.41:2001MAR30	1	6	forward 1	TM	Cytosolic
68	LG:1091941.41:2001MAR30	7	29	forward 1	TM	Transmembrane
68	LG:1091941.41:2001MAR30	30	260	forward 1	· TM	Non-Cytosolic
69	LG:1093386.8:2001MAR30	1	22	forward 1	TM	Non-Cytosolic
69	LG:1093386.8:2001MAR30	23	42	forward 1	TM	Transmembrane
69	LG:1093386.8:2001MAR30	43	254	forward 1	TM	Cytosolic
69	LG:1093386.8:2001MAR30	255	274	forward 1	TM	Transmembrane
69	LG:1093386.8:2001MAR30	275	612	forward 1	TM	Non-Cytosolic
69	LG:1093386.8:2001MAR30	613	635	forward 1	TM	Transmembrane
69	LG:1093386.8:2001MAR30	636	647	forward 1	TM	Cytosolic
69	LG:1093386.8:2001MAR30	648	670	forward 1	TM	Transmembrane
69	LG:1093386.8:2001MAR30	671	680	forward 1	TM	Non-Cytosolic
69	LG:1093386.8:2001MAR30	1	123	forward 2	TM	Non-Cytosolic
69	LG:1093386.8:2001MAR30	124	146	forward 2	TM	Transmembrane
69	LG:1093386.8:2001MAR30	147	597	forward 2	TM	Cytosolic
69	LG:1093386.8:2001MAR30	598	620	forward 2	TM	Transmembrane
69	LG:1093386.8:2001MAR30	621	642	forward 2	TM	Non-Cytosolic
69	LG:1093386.8:2001MAR30	643	665	forward 2	TM	Transmembrane
69	LG:1093386.8:2001MAR30	666	679	forward 2	TM	Cytosolic
69	LG:1093386.8:2001MAR30	1	252	forward 3	TM	Non-Cytosolic
69	LG:1093386.8:2001MAR30	253	275	forward 3	TM	Transmembrane
69	LG:1093386.8:2001MAR30	276	294	forward 3	TM	Cytosolic
69	LG:1093386.8:2001MAR30	295	317	forward 3	TM	Transmembrane
69	LG:1093386.8:2001MAR30	318	596	forward 3	TM	Non-Cytosolic
69	LG:1093386.8:2001MAR30	597	619	forward 3	TM	Transmembrane
69	LG:1093386.8:2001MAR30	620	639	forward 3	TM	Cytosolic
69	LG:1093386.8:2001MAR30	640	662	forward 3	TM	Transmembrane
69	LG:1093386.8:2001MAR30	663	679	forward 3	TM	Non-Cytosolic
70	LG:1094187.33:2001MAR30	1	128	forward 1	TM	Cytosolic
70	LG:1094187.33:2001MAR30	129	151	forward 1	TM	Transmembrane
70	LG:1094187.33:2001MAR30	152	154	forward 1	TM	Non-Cytosolic
70 70	LG:1094187.33:2001MAR30	155	177	forward 1	TM	Transmembrane
70 70	LG:1094187.33:2001MAR30	178	373	forward 1	TM	Cytosolic
70 70	LG:1094187.33:2001MAR30	374	396	forward 1	TM	Transmembrane
70 70	LG:1094187.33:2001MAR30	397	415	forward 1	TM	Non-Cytosolic
70 70	LG:1094187.33:2001MAR30	416	438	forward 1	TM ·	Transmembrane
70 70	LG:1094187.33:2001MAR30	439	472	forward 1	TM	Cytosolic
70 70	LG:1094187.33:2001MAR30	1	126	forward 2	TM	Cytosolic
70 70	LG:1094187.33:2001MAR30	127	149	forward 2	TM	Transmembrane
70 70	LG:1094187.33:2001MAR30	150	181	forward 2	TM	Non-Cytosolic
70 70	LG:1094187.33:2001MAR30	182	199	forward 2	TM	Transmembrane
70 70	LG:1094187.33:2001MAR30	200	372	forward 2	TM	Cytosolic
70 70		373		forward 2		Transmembrane
	LG:1094187.33:2001MAR30	396	395		TM	
70 70	LG:1094187.33:2001MAR30	390 422	421	forward 2	TM	Non-Cytosolic Transmembrane
70 70	LG:1094187.33:2001MAR30	445	444	forward 2	TM	
70 70	LG:1094187.33:2001MAR30		471	forward 2	TM	Cytosolic
70 70	LG:1094187.33:2001MAR30	120	129	forward 3	TM	Non-Cytosolic
70 70	LG:1094187.33:2001MAR30	130	149	forward 3	TM	Transmembrane
70 70	LG:1094187.33:2001MAR30	150	150	forward 3	TM	Cytosolic
70 70	LG:1094187.33:2001MAR30	151	170	forward 3	TM	Transmembrane
70 70	LG:1094187.33:2001MAR30	171	179	forward 3	TM	Non-Cytosolic
70	LG:1094187.33:2001MAR30	180	197	forward 3	TM	Transmembrane

SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
70	LG:1094187.33:2001MAR30	198	355	forward 3	TM	Cytosolic
70 70	LG:1094187.33:2001MAR30	356	375	forward 3	TM	Transmembrane
70 70	LG:1094187.33:2001MAR30	376	404	forward 3	TM	Non-Cytosolic
70 70	LG:1094187.33:2001MAR30	405	427	forward 3	TM	Transmembrane
70 70	LG:1094187.33:2001MAR30	428	439	forward 3	TM	
						Cytosolic
70	LG:1094187.33:2001MAR30	440	462	forward 3	TM	Transmembrane
70	LG:1094187.33:2001MAR30	463	471	forward 3	TM	Non-Cytosolic
71	LG:1098692.18:2001MAR30	1	37	forward 2	TM	Non-Cytosolic
71	LG:1098692.18:2001MAR30	38	57	forward 2	TM	Transmembrane
71	LG:1098692.18:2001MAR30	58	124	forward 2	TM	Cytosolic
71	LG:1098692.18:2001MAR30	125	147	forward 2	TM	Transmembrane
71	LG:1098692.18:2001MAR30	148	176	forward 2	TM	Non-Cytosolic
71	LG:1098692.18:2001MAR30	177	199	forward 2	TM	Transmembrane
71	LG:1098692.18:2001MAR30	200	211	forward 2	TM	Cytosolic
71	LG:1098692.18:2001MAR30	212	231	forward 2	TM	Transmembrane
71	LG:1098692.18:2001MAR30	232	250	forward 2	TM	Non-Cytosolic
71	LG:1098692.18:2001MAR30	251	273	forward 2	TM	Transmembrane
71	LG:1098692.18:2001MAR30	274	588	forward 2	TM	Cytosolic
72	LG:1173104.22:2001MAR30	1	180	forward 1	TM	Non-Cytosolic
72	LG:1173104.22:2001MAR30	181	203	forward 1	TM	Transmembrane
72	LG:1173104.22:2001MAR30	204	265	forward 1	TM	Cytosolic
72	LG:1173104.22:2001MAR30	266	288	forward I	TM	Transmembrane
72	LG:1173104.22:2001MAR30	289	297	forward 1	TM	Non-Cytosolic
72	LG:1173104.22:2001MAR30	298	320	forward 1	TM	Transmembrane
72	LG:1173104.22:2001MAR30	321	389	forward 1	TM	Cytosolic
72	LG:1173104.22:2001MAR30:	1	265	forward 2	TM	Cytosolic
. 72	LG:1173104.22:2001MAR30	266	285	forward 2	TM	Transmembrane
72	LG:1173104.22:2001MAR30	286	-299	forward 2	· TM	Non-Cytosolic
72	LG:1173104.22:2001MAR30	300	. 322	forward 2	TM	Transmembrane
72	LG:1173104.22:2001MAR30	323	389	forward 2	TM	Cytosolic
72	LG:1173104.22:2001MAR30	1	267	forward 3	TM	Non-Cytosolic
72	LG:1173104.22:2001MAR30	268	290	forward 3	TM	Transmembrane
72	LG:1173104.22:2001MAR30	291	296	forward 3	TM	Cytosolic
72	LG:1173104.22:2001MAR30	297	319	forward 3	TM	Transmembrane
72	LG:1173104.22:2001MAR30	320	388	forward 3	TM	Non-Cytosolic
73	LG:1215335.7:2001MAR30	. 1	971	forward 1	TM	Non-Cytosolic
73	LG:1215335.7:2001MAR30	972	994	forward 1	TM	Transmembrane
73	LG:1215335.7:2001MAR30	995	1050	forward 1	TM	Cytosolic
73	LG:1215335.7:2001MAR30	1	160	forward 2	TM	Non-Cytosolic
73	LG:1215335.7:2001MAR30	161	183	forward 2	TM	Transmembrane
73	LG:1215335.7:2001MAR30	184	467	forward 2	TM	Cytosolic
73	LG:1215335.7:2001MAR30	468	490	forward 2	TM	Transmembrane
73	LG:1215335.7:2001MAR30	491	1050	forward 2	TM	Non-Cytosolic
74	LG:1256753.1:2001MAR30	1	10	forward 1	TM	Cytosolic
74	LG:1256753.1:2001MAR30	11	33	forward 1	TM	Transmembrane
74 74	LG:1256753.1:2001MAR30	34	614	forward 1	TM	Non-Cytosolic
74 74		615	637	forward 1		Transmembrane
74 74	LG:1256753.1:2001MAR30 LG:1256753.1:2001MAR30	638	669	forward 1	TM	
74 74	LG:1256753.1:2001MAR30		573	forward 2	TM	Cytosolic
74 74	LG:1256753.1:2001MAR30	I 574	513 596		TM	Cytosolic
				forward 2	TM	Transmembrane
74 74	LG:1256753.1:2001MAR30	597	615	forward 2	TM	Non-Cytosolic
74 74	LG:1256753.1:2001MAR30	616	638	forward 2	TM	Transmembrane
74	LG:1256753.1:2001MAR30	639	669	forward 2	TM	Cytosolic
74	LG:1256753.1:2001MAR30	1	45	forward 3	TM	Non-Cytosolic

		TABI	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
74	LG:1256753.1:2001MAR30	46	68	forward 3	TM	Transmembrane
74	LG:1256753.1:2001MAR30	69	74	forward 3	TM	Cytosolic
74	LG:1256753.1:2001MAR30	75	97	forward 3	TM	Transmembrane
74	LG:1256753.1:2001MAR30	98	503	forward 3	TM	Non-Cytosolic
74	LG:1256753.1:2001MAR30	504	523	forward 3	TM	Transmembrane
74	LG:1256753.1:2001MAR30	524	669	forward 3	TM	Cytosolic
75	LG:1326702.10:2001MAR30	1	2173	forward 1	TM	Non-Cytosolic
75	LG:1326702.10:2001MAR30	2174	2196	forward 1	TM	Transmembrane
75	LG:1326702.10:2001MAR30	2197	2202	forward 1	TM	Cytosolic
75	LG:1326702.10:2001MAR30	2203	2225	forward 1	TM	Transmembrane
75	LG:1326702.10:2001MAR30	2226	2234	forward 1	TM	Non-Cytosolic
75	LG:1326702.10:2001MAR30	2235	2257	forward 1	TM	Transmembrane
75	LG:1326702.10:2001MAR30	2258	2258	forward 1	TM	Cytosolic
75	LG:1326702.10:2001MAR30	1	2174	forward 2	TM	Non-Cytosolic
75	LG:1326702.10:2001MAR30	2175	2197	forward 2	TM	Transmembrane
75	LG:1326702.10:2001MAR30	2198	2209	forward 2	TM	Cytosolic
75	LG:1326702.10:2001MAR30	2210	2232	forward 2	TM	Transmembrane
75	LG:1326702.10:2001MAR30	2233	2257	forward 2	TM	Non-Cytosolic
75	LG:1326702.10:2001MAR30	1	1425	forward 3	TM	Non-Cytosolic
75	LG:1326702.10:2001MAR30	1426	1448	forward 3	TM	Transmembrane
75	LG:1326702.10:2001MAR30	1449	1521	forward 3	TM	Cytosolic
75	LG:1326702.10:2001MAR30	1522	1541	forward 3	TM	Transmembrane
75 ·	LG:1326702.10:2001MAR30	1542	1608	forward 3	TM	Non-Cytosolic
75	LG:1326702.10:2001MAR30	1609	1631	forward 3		Transmembrane
75	LG:1326702.10:2001MAR30	1632	2174	forward 3	TM	Cytosolic
75	LG:1326702.10:2001MAR30	2175	2197	forward 3	TM	Transmembrane
75 ·	LG:1326702.10:2001MAR30	2198	2211	forward 3	TM	Non-Cytosolic
75	LG:1326702.10:2001MAR30	2212		forward 3	TM	Transmembrane
75	LG:1326702.10:2001MAR30	2235	2257	forward 3	TM	Cytosolic
76	LG:1327239.15:2001MAR30	1	59	forward 1	TM	Cytosolic
76	LG:1327239.15:2001MAR30	60	82	forward 1	TM	Transmembrane
76	LG:1327239.15:2001MAR30	83	253	forward 1	TM	Non-Cytosolic
76	LG:1327239.15:2001MAR30	254	276	forward 1	TM	Transmembrane
76	LG:1327239.15:2001MAR30	277	287	forward 1	TM	Cytosolic
76	LG:1327239.15:2001MAR30	288	310	forward 1	TM	Transmembrane
76	LG:1327239.15:2001MAR30	311	499	forward 1	TM	Non-Cytosolic
76	LG:1327239.15:2001MAR30	1	60	forward 2	TM	Cytosolic
76	LG:1327239.15:2001MAR30	61	83	forward 2	TM	Transmembrane
76 ·	LG:1327239.15:2001MAR30	84	120	forward 2	TM	Non-Cytosolic
76	LG:1327239.15:2001MAR30	121	143	forward 2	TM	Transmembrane
76 ·	LG:1327239.15:2001MAR30	144	155	forward 2	TM	Cytosolic
76 ·	LG:1327239.15:2001MAR30	156	178	forward 2	TM	Transmembrane
76	LG:1327239.15:2001MAR30	179	499	forward 2	TM	Non-Cytosolic
76	LG:1327239.15:2001MAR30	1	33	forward 3	TM	Cytosolic
76	LG:1327239.15:2001MAR30	34	56	forward 3	TM	Transmembrane
76	LG:1327239.15:2001MAR30	57	60	forward 3	TM	Non-Cytosolic
76	LG:1327239.15:2001MAR30	61	83	forward 3	TM	Transmembrane
76	LG:1327239.15:2001MAR30	84	190	forward 3	. TM	Cytosolic
76	LG:1327239.15:2001MAR30	191	213	forward 3	TM	Transmembrane
76	LG:1327239.15:2001MAR30	214	254	forward 3	TM	Non-Cytosolic
76	LG:1327239.15:2001MAR30	255	277	forward 3	TM	Transmembrane
76	LG:1327239.15:2001MAR30	278	468	forward 3	TM	Cytosolic
76	LG:1327239.15:2001MAR30	469	491	forward 3	TM	Transmembrane
76	LG:1327239.15:2001MAR30	492	499	forward 3	TM	Non-Cytosolic

		TABI	LE 2			
SEQ D NO:		Start	Stop	Frame	Domain Type	Topology
77	LG:1327867.15:2001MAR30	1	508	forward 1	·TM	Non-Cytosolic
77	LG:1327867.15:2001MAR30	509	528	forward 1	TM	Transmembrane
77	LG:1327867.15:2001MAR30	529	548	forward 1	TM	Cytosolic
77	LG:1327867.15:2001MAR30	549	571	forward 1	TM	Transmembrane
77	LG:1327867.15:2001MAR30	572	575	forward 1	TM	Non-Cytosolic
77	LG:1327867.15:2001MAR30	576	593	forward 1	TM	Transmembrane
77	LG:1327867.15:2001MAR30	594	706	forward 1	TM	Cytosolic
77	LG:1327867.15:2001MAR30	707	729	forward 1	TM	Transmembrane
77	LG:1327867.15:2001MAR30	730	774	forward 1	TM	Non-Cytosolic
<i>77</i> ·	LG:1327867.15:2001MAR30	775	797	forward 1	TM	Transmembrane
77	LG:1327867.15:2001MAR30	798	803	forward 1	TM	Cytosolic
77	LG:1327867.15:2001MAR30	804	826	forward 1	TM	Transmembrane
77	LG:1327867.15:2001MAR30	827	851	forward 1	TM	Non-Cytosolic
77	LG:1327867.15:2001MAR30	852	874	forward 1	TM	Transmembrane
77	LG:1327867.15:2001MAR30	875	893	forward 1	TM	Cytosolic
77	LG:1327867.15:2001MAR30	894	916	forward 1	TM	Transmembrane
77	LG:1327867.15:2001MAR30	917	930	forward 1	TM	Non-Cytosolic
77	LG:1327867.15:2001MAR30	931	953	forward 1	TM	Transmembrane
77	LG:1327867.15:2001MAR30	954	1158	forward 1	TM	Cytosolic
77	LG:1327867.15:2001MAR30	1159	1181	forward 1	TM	Transmembrane
77	LG:1327867.15:2001MAR30	1182	1212	forward 1	TM	Non-Cytosolic
77	LG:1327867.15:2001MAR30	1	450	forward 2	TM	Non-Cytosolic
77	LG:1327867.15:2001MAR30	451	473	forward 2	TM	Transmembrane
77	LG:1327867.15:2001MAR30	474	477	forward 2	TM	Cytosolic
77	LG:1327867.15:2001MAR30	478	496	forward 2	TM	Transmembrane
77	LG:1327867.15:2001MAR30	497	505		TM	Non-Cytosolic .
77	LG:1327867.15:2001MAR30	506	528	forward 2	TM	Transmembrane
77	LG:1327867.15:2001MAR30	529	548	forward 2		Cytosolic
77	LG:1327867.15:2001MAR30	549	571	forward 2	TM	Transmembrane
77	LG:1327867.15:2001MAR30	572	574	forward 2	TM	Non-Cytosolic
77	LG:1327867.15:2001MAR30	575	593	forward 2	TM	Transmembrane
77	LG:1327867.15:2001MAR30	594	718	forward 2	TM	Cytosolic
77	LG:1327867.15:2001MAR30	719	741	forward 2	TM	Transmembrane
77	LG:1327867.15:2001MAR30	742	760	forward 2	TM	Non-Cytosolic
77	LG:1327867.15:2001MAR30	761	783	forward 2	TM	Transmembrane
77	LG:1327867.15:2001MAR30	784	789	forward 2	TM	Cytosolic
77	LG:1327867.15:2001MAR30	790	812	forward 2	TM	Transmembrane
77	LG:1327867.15:2001MAR30	813	854	forward 2	TM	Non-Cytosolic
77	LG:1327867.15:2001MAR30	85 <i>5</i>	877	forward 2	TM	Transmembrane
77	LG:1327867.15:2001MAR30	878	897	forward 2	TM	Cytosolic
77	LG:1327867.15:2001MAR30	898	920	forward 2	TM	Transmembrane
77	LG:1327867.15:2001MAR30	921	934	forward 2	TM	Non-Cytosolic
. 77	LG:1327867.15:2001MAR30	935	952	forward 2	TM	Transmembrane
77	LG:1327867.15:2001MAR30	953	1211	forward 2	TM	Cytosolic
77	LG:1327867.15;2001MAR30	1	447	forward 3	TM	Non-Cytosolic
77	LG:1327867.15:2001MAR30	448	470	forward 3	TM	Transmembrane
77	LG:1327867.15:2001MAR30	471	548	forward 3	TM	Cytosolic
 77	LG:1327867.15:2001MAR30	549	571	forward 3	·TM	Transmembrane
77	LG:1327867.15:2001MAR30	572	574	forward 3	TM	Non-Cytosolic
 77	LG:1327867.15:2001MAR30	575	592	forward 3	TM	Transmembrane
7 <b>7</b>	LG:1327867.15:2001MAR30	593	771	forward 3	TM	Cytosolic
,, 77	LG:1327867.15:2001MAR30	772	794	forward 3	TM	Transmembrane
77	LG:1327867.15:2001MAR30	795	798	forward 3	TM	Non-Cytosolic
77	LG:1327867.15:2001MAR30	799	821	forward 3	TM	Transmembrane
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#### TABLE 2 SEQ D NO: Domain Type Template ID Start Stop Frame Topology 77 LG:1327867.15:2001MAR30 822 833 forward 3 Cytosolic TM 77 LG:1327867.15:2001MAR30 834 856 forward 3 TM Transmembrane 77 LG:1327867.15:2001MAR30 857 1174 forward 3 TM Non-Cytosolic 77 LG:1327867.15:2001MAR30 1175 1197 forward 3 TM Transmembrane 77 LG:1327867.15:2001MAR30 1198 1211 forward 3 TM Cytosolic 78 LG:1383232.1:2001MAR30 20 1 forward 1 TM Cytosolic 78 LG:1383232.1:2001MAR30 21 43 forward 1 TM Transmembrane 78 LG:1383232.1:2001MAR30 44 754 forward 1 TM Non-Cytosolic 78 LG:1383232.1:2001MAR30 755 777 forward 1 TM Transmembrane 78 LG:1383232.1:2001MAR30 778 788 forward 1 TM Cytosolic 78 LG:1383232.1:2001MAR30 1 14 forward 2 TM Non-Cytosolic 78 LG:1383232.1:2001MAR30 15 34 forward 2 TM Transmembrane 78 LG:1383232.1:2001MAR30 35 71 forward 2 TM Cytosolic 78 LG:1383232.1:2001MAR30 72 94 forward 2 TM Transmembrane 78 LG:1383232.1:2001MAR30 95 113 forward 2 Non-Cytosolic TM 78 LG:1383232.1:2001MAR30 114 136 forward 2 TM Transmembrane 78 LG:1383232.1:2001MAR30 137 190 forward 2 TM Cytosolic 78 LG:1383232.1:2001MAR30 191 forward 2 213 TM Transmembrane 78 LG:1383232.1:2001MAR30 214 401 forward 2 TM Non-Cytosolic 78 LG:1383232.1:2001MAR30 402 424 forward 2 TM Transmembrane 78 LG:1383232.1:2001MAR30 425 604 forward 2 TM Cytosolic 78 LG:1383232.1:2001MAR30 605 627 forward 2 TM Transmembrane 78 LG:1383232.1:2001MAR30 628 720 forward 2 TM Non-Cytosolic 78 LG:1383232.1:2001MAR30 721 743 forward 2 TM Transmembrane 78 LG:1383232.1:2001MAR30 744 749 forward 2 TM Cytosolic 78 LG:1383232.1:2001MAR30 . 750 769 forward 2 TM . Transmembrane 78 LG:1383232.1:2001MAR30 770 787 forward 2 TM Non-Cytosolic 78. LG:1383232.1:2001MAR30 1 405 forward 3 TM Non-Cytosolic 78. LG:1383232.1:2001MAR30 406 428 forward 3 TM Transmembrane 78 LG:1383232.1:2001MAR30 429 480 forward 3 TM Cytosolic 78 LG:1383232.1:2001MAR30 481 503 forward 3 TM Transmembrane 78 LG:1383232.1:2001MAR30 504 699 forward 3 TM Non-Cytosolic 78 LG:1383232.1:2001MAR30 700 722 forward 3 TM Transmembrane 78 LG:1383232.1:2001MAR30 723 728 forward 3 TM Cytosolic 78 LG:1383232.1:2001MAR30 729 747 forward 3 TM Transmembrane 78 LG:1383232.1:2001MAR30 748 756 forward 3 TM Non-Cytosolic 78 LG:1383232.1:2001MAR30 757 776 forward 3 TM Transmembrane LG:1383232.1:2001MAR30 78 777 787 forward 3 TM Cytosolic 79 LG:1383368.40:2001MAR30 393 1 forward 1 TM Cytosolic 79 LG:1383368.40:2001MAR30 394 416 forward 1 TM Transmembrane 79 LG:1383368.40:2001MAR30 417 forward 1 482 TM Non-Cytosolic 79 LG:1383368.40:2001MAR30 483 500 forward 1 TM Transmembrane 79 LG:1383368.40:2001MAR30 501 574 forward 1 TM Cytosolic 79 LG:1383368.40:2001MAR30 575 597 forward 1 TM Transmembrane 79 LG:1383368.40:2001MAR30 598 695 forward 1 TM Non-Cytosolic 79 LG:1383368.40:2001MAR30 696 718 forward 1 TM Transmembrane 79 LG:1383368.40:2001MAR30 719 753 TM forward 1 Cytosolic 79 LG:1383368.40:2001MAR30 754 776 forward 1 TM Transmembrane 79 LG:1383368.40:2001MAR30 777 795 forward 1 TM Non-Cytosolic 79 LG:1383368.40:2001MAR30 796 818 forward 1 TM Transmembrane 79 LG:1383368.40:2001MAR30 819 838 forward 1 TM Cytosolic LG:1383368.40:2001MAR30 79 839 861 forward 1 TM Transmembrane LG:1383368.40:2001MAR30 79 862 922 forward 1 TM Non-Cytosolic

945

forward 1

TM

Transmembrane

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LG:1383368.40:2001MAR30

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
79	LG:1383368.40:2001MAR30	946	1030	forward 1	TM	Cytosolic
79	LG:1383368.40:2001MAR30	1031	1050	forward 1	TM	Transmembrane
79	LG:1383368.40:2001MAR30	1051	1077	forward 1	TM	Non-Cytosolic
79	LG:1383368.40:2001MAR30	1078	1100	forward 1	TM	Transmembrane
79	LG:1383368.40:2001MAR30	1101	1112	forward 1	TM	Cytosolic
79	LG:1383368.40:2001MAR30	1	398	forward 2	TM	Non-Cytosolic
79	LG:1383368.40:2001MAR30	399	421	forward 2	TM	Transmembrane
79	LG:1383368.40:2001MAR30	422	578	forward 2	TM	Cytosolic
79	LG:1383368.40:2001MAR30	579	601	forward 2	TM	Transmembrane
79	LG:1383368.40:2001MAR30	602	604	forward 2	TM	Non-Cytosolic
79	LG:1383368.40:2001MAR30	605	627	forward 2	TM	Transmembrane
79	LG:1383368.40:2001MAR30	628	704	forward 2	TM	Cytosolic
79	LG:1383368.40:2001MAR30	705	724	forward 2	TM	Transmembrane
79	LG:1383368.40:2001MAR30	725	733	forward 2	TM	Non-Cytosolic
79	LG:1383368.40:2001MAR30	734	756	forward 2	TM	Transmembrane
79	LG:1383368.40:2001MAR30	757	767	forward 2	TM	Cytosolic
79	LG:1383368.40:2001MAR30	768	790	forward 2	TM	Transmembrane
79	LG:1383368.40:2001MAR30	791	804	forward 2	TM	Non-Cytosolic
79	LG:1383368.40:2001MAR30	805	823	forward 2	TM	Transmembrane
79	LG:1383368.40:2001MAR30	824	829	forward 2	TM	Cytosolic
79	LG:1383368.40:2001MAR30	830	847	forward 2	TM	Transmembrane
79	LG:1383368.40:2001MAR30	848	856	forward 2	TM	Non-Cytosolic
79	LG:1383368.40:2001MAR30	857	879	forward 2	TM	Transmembrane
	LG:1383368.40:2001MAR30	880	1005	forward 2	TM	Cytosolic
79	LG:1383368.40:2001MAR30	1006	1028	forward 2	TM	Transmembrane
79	LG:1383368.40:2001MAR30	1029	1032	forward 2	TM	Non-Cytosolic
	LG:1383368.40:2001MAR30	1033	1052	forward 2	· TM	Transmembrane
79	LG:1383368.40:2001MAR30	1053	1077	forward 2	TM	Cytosolic
79	LG:1383368.40:2001MAR30	1078	1100	forward 2	TM	Transmembrane
79	LG:1383368.40:2001MAR30	1101	1112	forward 2	TM	Non-Cytosolic
79	LG:1383368.40:2001MAR30	1	129	forward 3	TM	Cytosolic
79	LG:1383368.40:2001MAR30	130	152	forward 3	TM	Transmembrane
79	LG:1383368.40:2001MAR30	153	396	forward 3	TM	Non-Cytosolic
79	LG:1383368.40:2001MAR30	397	419	forward 3	TM	Transmembrane
79	LG:1383368.40:2001MAR30	420	443	forward 3	TM	Cytosolic
79	LG:1383368.40:2001MAR30	444	466	forward 3	TM	Transmembrane
79	LG:1383368.40:2001MAR30	467	485	forward 3	TM	Non-Cytosolic
79	LG:1383368.40:2001MAR30	486	508	forward 3	TM	Transmembrane
79	LG:1383368.40:2001MAR30	509	574	forward 3	TM	Cytosolic
79	LG:1383368.40:2001MAR30	575	597	forward 3	TM	Transmembrane
79	LG:1383368.40:2001MAR30	598	· 611	forward 3	TM	Non-Cytosolic
79	LG:1383368.40:2001MAR30	612	631	forward 3	TM	Transmembrane
79	LG:1383368.40:2001MAR30	632	855	forward 3	TM	Cytosolic
79	LG:1383368.40:2001MAR30	856	878	forward 3	TM	Transmembrane
79	LG:1383368.40:2001MAR30	879	913	forward 3	TM	Non-Cytosolic
79	LG:1383368.40:2001MAR30	914	936	forward 3	TM	Transmembrane
79	LG:1383368.40:2001MAR30	937	1002	forward 3	TM	Cytosolic
79	LG:1383368.40:2001MAR30	1003	1025	forward 3	TM	Transmembrane
79	LG:1383368.40:2001MAR30	1026	1081	forward 3	TM	Non-Cytosolic
79	LG:1383368.40:2001MAR30	1082	1104	forward 3	TM	Transmembrane
79	LG:1383368.40:2001MAR30	1105	1111	forward 3	TM	Cytosolic
80	LG:1384477.1:2001MAR30	1	77	forward 1	TM	Non-Cytosolic
80	LG:1384477.1:2001MAR30	78	100	forward 1	TM	Transmembrane
80	LG:1384477.1:2001MAR30	101	112	forward 1	TM	Cytosolic
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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
80	LG:1384477.1:2001MAR30	113	135	forward I	TM	Transmembrane
80	LG:1384477.1:2001MAR30	136	601	forward 1	TM	Non-Cytosolic
80	LG:1384477.1:2001MAR30	602	624	forward 1	TM	Transmembrane
80	LG:1384477.1:2001MAR30	625	639	forward 1	TM	Cytosolic
80	LG:1384477.1:2001MAR30	1	127	forward 2	· TM	Cytosolic
80	LG:1384477.1:2001MAR30	128	150	forward 2	TM	Transmembrane
80	LG:1384477.1:2001MAR30	151	639	forward 2	TM	Non-Cytosolic
80	LG:1384477.1:2001MAR30	1	62	forward 3	TM	Cytosolic
80	LG:1384477.1:2001MAR30	63	80	forward 3	TM	Transmembrane
80	LG:1384477.1:2001MAR30	81	639	forward 3	TM	Non-Cytosolic
81	LG:1390822.1:2001MAR30	1	550	forward 1	TM	Non-Cytosolic
81	LG:1390822.1:2001MAR30	551	573	forward 1	TM	Transmembrane
81	LG:1390822.1:2001MAR30	574	744	forward 1	TM	Cytosolic
81	LG:1390822.1:2001MAR30	745	767	forward 1	TM	Transmembrane
81	LG:1390822.1:2001MAR30	768	776	forward 1	TM	Non-Cytosolic
81	LG:1390822.1:2001MAR30	777	799	forward 1	TM	Transmembrane
81	LG:1390822.1:2001MAR30	800	811	forward 1	TM	Cytosolic
81	LG:1390822.1:2001MAR30	812	834	forward 1	TM	Transmembrane
81	LG:1390822.1:2001MAR30	835	921	forward 1	TM	Non-Cytosolic
81	LG:1390822.1:2001MAR30	922	944	forward I	TM	Transmembrane
81	LG:1390822.1:2001MAR30	945	977	forward 1	TM	Cytosolic
81	LG:1390822.1:2001MAR30	978	1000	forward 1	TM ·	Transmembrane
81	LG:1390822.1:2001MAR30	1001	1049	forward 1	TM	Non-Cytosolic
81	LG:1390822,1:2001MAR30	1050	1067	forward 1	TM	Transmembrane
81	LG:1390822.1:2001MAR30	1068	1102	forward 1	TM	Cytosolic
81	LG:1390822.1:2001MAR30	1103	1125	forward 1	TM	Transmembrane
81.	LG:1390822.1:2001MAR30	1126	1134	forward 1	TM	Non-Cytosolic
81	LG:1390822.1:2001MAR30	1135	1157	forward 1	TM	Transmembrane
81	EG:1390822.1:2001MAR30	1158	1236	forward 1	TM	Cytosolic
81	LG:1390822.1:2001MAR30	1	549	forward 3	TM	Non-Cytosolic
81	LG:1390822.1:2001MAR30	550	572	forward 3	TM	Transmembrane
81	LG:1390822.1:2001MAR30	573	765	forward 3	TM	Cytosolic
81	LG:1390822.1:2001MAR30	766	788	forward 3	TM	Transmembrane
81	LG:1390822.1:2001MAR30	789	816	forward 3	TM	Non-Cytosolic
81	LG:1390822.1:2001MAR30	817	839	forward 3	TM	Transmembrane
81	LG:1390822.1:2001MAR30	840	910	forward 3	TM	Cytosolic
81	LG:1390822.1:2001MAR30	911	933	forward 3	TM	Transmembrane
81	LG:1390822.1:2001MAR30	934	1049	forward 3	TM	Non-Cytosolic
81	LG:1390822.1:2001MAR30	1050	1067	forward 3	TM	Transmembrane
81	LG:1390822.1:2001MAR30	1068	1097	forward 3	TM	Cytosolic
81	LG:1390822.1:2001MAR30	1098	1120	forward 3	TM	Transmembrane
81	LG:1390822.1:2001MAR30	1121	1236	forward 3	TM	Non-Cytosolic
82	LG:1398274.13:2001MAR30	1	9	forward 1	TM	Non-Cytosolic
82	LG:1398274.13:2001MAR30	10	32	forward 1	TM	Transmembrane
82	LG:1398274.13:2001MAR30	33	36	forward 1	TM	Cytosolic
82	LG:1398274.13:2001MAR30	37	54	forward 1	TM	Transmembrane
82	LG:1398274.13:2001MAR30	55	901	forward 1	TM	Non-Cytosolic
82	LG:1398274.13:2001MAR30	902	924	forward 1	TM	Transmembrane
82	LG:1398274.13:2001MAR30	925	973	forward 1	TM	Cytosolic
82	LG:1398274.13:2001MAR30	974	996	forward 1	TM	Transmembrane
82	LG:1398274.13:2001MAR30	997	1354	forward 1	TM	Non-Cytosolic
82 82	LG:1398274.13:2001MAR30	1355	1377	forward 1	TM	Transmembrane
82 82	LG:1398274.13:2001MAR30	1378	1410	forward 1	TM	Cytosolic
82	LG:1398274.13:2001MAR30	1	4	forward 2	TM	Non-Cytosolic

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
82	LG:1398274.13:2001MAR30	5	27	forward 2	TM	Transmembrane
82	LG:1398274.13:2001MAR30	28	33	forward 2	TM	Cytosolic
82	LG:1398274.13:2001MAR30	34	56	forward 2	TM	Transmembrane
82	LG:1398274.13:2001MAR30	57	498	forward 2	TM	Non-Cytosolic
82	LG:1398274.13:2001MAR30	499	516	forward 2	TM	Transmembrane
82	LG:1398274.13:2001MAR30	517	522	forward 2	TM	Cytosolic
82	LG:1398274.13:2001MAR30	523	545	forward 2	TM	Transmembrane
82	LG:1398274.13:2001MAR30	546	891	forward 2	TM	Non-Cytosolic
82	LG:1398274.13:2001MAR30	892	914	forward 2	TM	Transmembrane
82	LG:1398274.13:2001MAR30	915	934	forward 2	TM	Cytosolic
82	LG:1398274.13:2001MAR30	935	952	forward 2	TM	Transmembrane
82	LG:1398274.13:2001MAR30	953	961	forward 2	TM	Non-Cytosolic
82	LG:1398274.13:2001MAR30	962	984	forward 2	TM	Transmembrane
82	LG:1398274.13:2001MAR30	985	1349	forward 2	TM	Cytosolic
82	LG:1398274.13:2001MAR30	1350	1372	forward 2	TM	Transmembrane
82	LG:1398274.13:2001MAR30	1373	1410	forward 2	TM	Non-Cytosolic
82	LG:1398274.13:2001MAR30	1	236	forward 3	TM	Non-Cytosolic
82	LG:1398274.13:2001MAR30	237	259	forward 3	TM	Transmembrane
82	LG:1398274.13:2001MAR30	260	353	forward 3	TM	Cytosolic
82	LG:1398274.13:2001MAR30	354	376	forward 3	TM	Transmembrane
82	LG:1398274.13:2001MAR30	377	390	forward 3	TM	Non-Cytosolic
82	LG:1398274.13:2001MAR30	391	413	forward 3	TM	Transmembrane
. 82	LG:1398274.13:2001MAR30	414	448	forward 3	TM	Cytosolic
82	LG:1398274.13:2001MAR30	449	471	forward 3	TM	Transmembrane
82	LG:1398274.13:2001MAR30	472	485	forward 3	TM	Non-Cytosolic
82	LG:1398274.13:2001MAR30	486	508	forward 3	TM	Transmembrane
82	LG:1398274.13:2001MAR30	509	520	forward 3	TM	Cytosolic
82	LG:1398274.13:2001MAR30	521	538	forward 3	TM	Transmembrane
82	LG:1398274.13:2001MAR30	539	754	forward 3	TM	Non-Cytosolic
82	LG:1398274.13:2001MAR30	755	774	forward 3	TM	Transmembrane
82	LG:1398274.13:2001MAR30	775	802	forward 3	TM	Cytosolic
82	LG:1398274.13:2001MAR30	803	825	forward 3	TM	Transmembrane
82	LG:1398274.13:2001MAR30	826	839	forward 3	TM	Non-Cytosolic
82	LG:1398274.13:2001MAR30	840	862	forward 3	TM	Transmembrane
82	LG:1398274.13:2001MAR30	863	894	forward 3	TM	Cytosolic
82	LG:1398274.13:2001MAR30	895	914	forward 3	TM	Transmembrane
82	LG:1398274.13:2001MAR30	915	1286	forward 3	TM	Non-Cytosolic
82	LG:1398274.13:2001MAR30	1287	1309	forward 3	TM	Transmembrane
82	LG:1398274.13:2001MAR30	1310	1320	forward 3	TM	Cytosolic
82	LG:1398274.13:2001MAR30	1321		forward 3	TM	Transmembrane
82	LG:1398274.13:2001MAR30	1344		forward 3	TM	Non-Cytosolic
82	LG:1398274.13:2001MAR30	1353	1375	forward 3	TM	Transmembrane
82	LG:1398274.13:2001MAR30	1376		forward 3	TM	Cytosolic
83	LG:1398646.1:2001MAR30	1	6	forward 1	TM	Cytosolic
83	LG:1398646.1:2001MAR30	7	26	forward 1	TM	Transmembrane
83	LG:1398646.1:2001MAR30	27	431	forward 1	TM	Non-Cytosolic
83	LG:1398646.1:2001MAR30	432	454	forward 1	TM	Transmembrane
83	LG:1398646.1:2001MAR30	455	820	forward 1	TM	Cytosolic
83	LG:1398646.1:2001MAR30	821	843	forward 1	TM	Transmembrane
83	LG:1398646.1:2001MAR30	844	852	forward 1	TM	Non-Cytosolic
83	LG:1398646.1:2001MAR30	853	872	forward 1	TM	Transmembrane
83	LG:1398646.1:2001MAR30	873	873	forward 1	TM	Cytosolic
83	LG:1398646.1:2001MAR30	874	891	forward 1	TM	Transmembrane
83	LG:1398646.1:2001MAR30	892	905	forward 1	TM	Non-Cytosolic
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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
83	LG:1398646.1:2001MAR30	906	928	forward 1	TM	Transmembrane
83	LG:1398646.1:2001MAR30	929	1081	forward 1	TM	Cytosolic
83	LG:1398646.1:2001MAR30	1	867	forward 2	TM	Non-Cytosolic
83	LG:1398646.1:2001MAR30	868	890	forward 2	TM	Transmembrane
83	LG:1398646.1:2001MAR30	891	1033	forward 2	TM	Cytosolic
83	LG:1398646.1:2001MAR30	1034	1053	forward 2	TM	Transmembrane
83	LG:1398646.1:2001MAR30	1054	1080	forward 2	TM	Non-Cytosolic
83	LG:1398646.1:2001MAR30	1	12	forward 3	TM	Cytosolic
83	LG:1398646.1:2001MAR30	13	35	forward 3	TM	Transmembrane
83	LG:1398646.1:2001MAR30	36	614	forward 3	TM	Non-Cytosolic
83	LG:1398646.1:2001MAR30	615	634	forward 3	TM	Transmembrane
83	LG:1398646.1:2001MAR30	635	866	forward 3	TM	Cytosolic
83	LG:1398646.1:2001MAR30	867	889	forward 3	TM	Transmembrane
83	LG:1398646.1:2001MAR30	890	903	forward 3	TM	Non-Cytosolic
83	LG:1398646.1:2001MAR30	904	926	forward 3	TM	Transmembrane
83	LG:1398646.1:2001MAR30	927	1032	forward 3	TM	Cytosolic
83	LG:1398646.1:2001MAR30	1033	1055	forward 3	TM	Transmembrane
83	LG:1398646.1:2001MAR30	1055	1033	forward 3	TM	
84				forward 2		Non-Cytosolic
84	LG:1398905.1:2001MAR30	1	278		TM	Non-Cytosolic
	LG:1398905.1:2001MAR30	279	296	forward 2	TM	Transmembrane
84	LG:1398905.1:2001MAR30	297	308	forward 2	TM	Cytosolic
84	LG:1398905.1:2001MAR30	309	331	forward 2	TM	Transmembrane
84	LG:1398905.1:2001MAR30	332	488	forward 2	TM	Non-Cytosolic
84	LG:1398905.1:2001MAR30	. 1	277	forward 3	TM	Non-Cytosolic
84	LG:1398905.1:2001MAR30	278	295	forward 3	TM	Transmembrane
. 84	LG:1398905.1:2001MAR30	296	487	forward 3	TM	Cytosolic
85 85	LG:1399785.1:2001MAR30	1	104	forward 1	TM	Non-Cytosolic
85	LG:1399785.1:2001MAR30	105	124	forward 1	TM	Transmembrane
85	LG:1399785.1:2001MAR30	125	145	forward 1	TM	Cytosolic
85	LG:1399785.1:2001MAR30	146	168	forward 1	TM	Transmembrane
85	LG:1399785.1:2001MAR30	169	1902	forward 1	TM	Non-Cytosolic
86	LG:1446193.10:2001MAR30	1	941	forward 1	TM	Non-Cytosolic
86	LG:1446193.10:2001MAR30	942	961	forward 1	TM	Transmembrane
86	LG:1446193.10:2001MAR30	962	1020	forward I	TM	Cytosolic
87	LG:1446210.8:2001MAR30	1	50	forward 1	TM	Cytosolic
87	LG:1446210.8:2001MAR30	51	70	forward 1	TM	Transmembrane
87	LG:1446210.8:2001MAR30	71	74	forward l	TM	Non-Cytosolic
87	LG:1446210.8:2001MAR30	75	97	forward 1	TM	Transmembrane
87	LG:1446210.8:2001MAR30	98	117	forward 1	TM	Cytosolic
87	LG:1446210.8:2001MAR30	118.	140	forward 1	TM	Transmembrane
87	LG:1446210.8:2001MAR30	141	159	forward 1	TM	Non-Cytosolic
87	LG:1446210.8:2001MAR30	160	182	forward 1	TM	Transmembrane
	LG:1446210.8:2001MAR30	183	333	forward 1	TM	Cytosolic
87	LG:1446210.8:2001MAR30	334	356	forward 1	TM	Transmembrane
87	LG:1446210.8:2001MAR30	357	375	forward I	TM	Non-Cytosolic
87	LG:1446210.8:2001MAR30	376	398	forward 1	TM	Transmembrane
87	LG:1446210.8:2001MAR30	399	404	forward 1	TM	Cytosolic
87	LG:1446210.8:2001MAR30	405	427	forward 1	TM	Transmembrane
87	LG:1446210.8:2001MAR30	428	596	forward 1	TM	Non-Cytosolic
87	LG:1446210.8:2001MAR30	1	43	forward 2	TM	Cytosolic
87	LG:1446210.8:2001MAR30	44	66	forward 2	TM	Transmembrane
87	LG:1446210.8:2001MAR30	67	369	forward 2	TM	Non-Cytosolic
87	LG:1446210.8:2001MAR30	370	392	forward 2	TM	Transmembrane
87	LG:1446210.8:2001MAR30	393	563	forward 2	TM	Cytosolic
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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
87	LG:1446210.8:2001MAR30	564	586	forward 2	TM	Transmembrane
87	LG:1446210.8:2001MAR30	587	596	forward 2	TM	Non-Cytosolic
88	LG:1450054.6:2001MAR30	1	1807	forward 2	TM	Non-Cytosolic
88	LG:1450054.6:2001MAR30	1808	1827	forward 2	TM	Transmembrane
88	LG:1450054.6:2001MAR30	1828	1865	forward 2	TM	Cytosolic
89	LG:1452516.4:2001MAR30	1020	567	forward 3	TM	Non-Cytosolic
89	LG:1452516.4:2001MAR30	568	590	forward 3	TM	Transmembrane
89	LG:1452516.4:2001MAR30	591	634	forward 3	TM	Cytosolic
90	LG:1455293.7:2001MAR30	1	27	forward 1	TM	Non-Cytosolic
90 .	LG:1455293.7:2001MAR30	28	46	forward 1	TM	Transmembrane
90	LG:1455293.7:2001MAR30	26 47	202	forward 1	TM	Cytosolic
90	LG:1455293.7:2001MAR30	203	225	forward 1	TM	Transmembrane
90	LG:1455293.7:2001MAR30	203	544	forward 1	TM	Non-Cytosolic
90	LG:1455293.7:2001MAR30	1	23	forward 2	TM	Non-Cytosolic
90	LG:1455293.7:2001MAR30	24	46	forward 2	TM	Transmembrane
90	LG:1455293.7:2001MAR30	24 47	200	forward 2	TM	Cytosolic
90	LG:1455293.7:2001MAR30	201	223	forward 2	TM	Transmembrane
90	LG:1455293.7:2001MAR30	224	242	forward 2	TM	Non-Cytosolic
90	LG:1455293.7:2001MAR30	243	260	forward 2	TM	Transmembrane
90	LG:1455293.7:2001MAR30	261	272	forward 2		Cytosolic
90	LG:1455293.7:2001MAR30	273	290	forward 2	TM	Transmembrane
90	LG:1455293.7:2001MAR30	273	485	forward 2	TM	Non-Cytosolic
90	LG:1455293.7:2001MAR30	486	505	forward 2	TM	Transmembrane
90	LG:1455293.7:2001MAR30	. 506	511	forward 2	TM	Cytosolic
90	LG:1455293.7:2001MAR30	512	534	forward 2	TM	Transmembrane
90	LG:1455293.7:2001MAR30	535	543		TM	Non-Cytosolic
90	LG:1455293.7:2001MAR30	.1	202	forward 3	TM	Cytosolic
90	LG:1455293.7:2001MAR30	203	225	forward 3	TM	Transmembrane
90	LG:1455293.7:2001MAR30	. 226	262	forward 3	TM	Non-Cytosolic
90	LG:1455293.7:2001MAR30	263	285	forward 3	TM	Transmembrane
90	LG:1455293.7:2001MAR30	286	305	forward 3	TM	Cytosolic
90	LG:1455293.7:2001MAR30	306	328	forward 3	TM	Transmembrane
90	LG:1455293.7:2001MAR30	329	401	forward 3	TM	Non-Cytosolic
90	LG:1455293.7:2001MAR30	402	424	forward 3	TM	Transmembrane
90	LG:1455293.7:2001MAR30	425	461	forward 3	TM	Cytosolic
90	LG:1455293.7:2001MAR30	462	484	forward 3	TM	Transmembrane
90	LG:1455293.7:2001MAR30	485	489	forward 3	TM	Non-Cytosolic
90	LG:1455293.7:2001MAR30	490	512	forward 3	TM	Transmembrane
90	LG:1455293.7:2001MAR30	513	543	forward 3	TM	Cytosolic
91	LG:1498113.1:2001MAR30	1	216	forward 3	TM	Cytosolic
92	LG:1500042.1:2001MAR30	1	4	forward 1	TM	Non-Cytosolic
92	LG:1500042.1:2001MAR30	5	27	forward 1	TM	Transmembrane
92	LG:1500042.1:2001MAR30	28	31	forward 1	TM	Cytosolic
92	LG:1500042.1:2001MAR30	32	54	forward 1	TM	Transmembrane
92	LG:1500042.1:2001MAR30	55	68	forward 1	TM	Non-Cytosolic
92	LG:1500042.1:2001MAR30	69	91	forward 1	TM	Transmembrane
92	LG:1500042.1:2001MAR30	92	97	forward 1	TM	Cytosolic
92	LG:1500042.1:2001MAR30	98	117	forward 1	TM	Transmembrane
92	LG:1500042.1:2001MAR30	118	122	forward 1	TM	Non-Cytosolic
92	LG:1500042.1:2001MAR30	1	6	forward 2	TM	Cytosolic
.92	LG:1500042.1:2001MAR30	7	29	forward 2	TM	Transmembrane
92	LG:1500042.1:2001MAR30	30	33	forward 2	TM	Non-Cytosolic
92	LG:1500042.1:2001MAR30	34	56	forward 2	TM	Transmembrane
92	LG:1500042.1:2001MAR30	57	62	forward 2	TM	Cytosolic
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SEQ D NO:		Start	Stop	Frame	Domain Type	Topology
92	LG:1500042.1:2001MAR30	63	85	forward 2	TM	Transmembrane
92	LG:1500042.1:2001MAR30	86	122	forward 2	TM	Non-Cytosolic
92	LG:1500042.1:2001MAR30	1	1	forward 3	TM	Cytosolic
92	LG:1500042.1:2001MAR30	2	24	forward 3	TM	Transmembrane
92	LG:1500042.1:2001MAR30	25	38	forward 3	TM	Non-Cytosolic
92	LG:1500042.1:2001MAR30	39	61	forward 3	TM	Transmembrane
92	LG:1500042.1:2001MAR30	62	87	forward 3	TM	Cytosolic
92	LG:1500042.1:2001MAR30	88	110	forward 3	TM	Transmembrane
92	LG:1500042.1:2001MAR30	111	122	forward 3	TM	Non-Cytosolic
93	LG:1500434.4:2001MAR30	1	179	forward 1	TM	Non-Cytosolic
93	LG:1500434.4:2001MAR30	180	202	forward 1	TM	Transmembrane
93	LG:1500434.4:2001MAR30	203	405	forward 1	TM	Cytosolic
93	LG:1500434.4:2001MAR30	406	423	forward 1	TM	Transmembrane
93	LG:1500434.4:2001MAR30	424	479	forward 1	TM	Non-Cytosolic
93	LG:1500434.4:2001MAR30	480	502	forward 1	TM	Transmembrane
93	LG:1500434.4:2001MAR30	503	543	forward 1	TM	Cytosolic
93	LG:1500434.4:2001MAR30	544	566	forward 1	TM	Transmembrane
93	LG:1500434.4:2001MAR30	567	593	forward 1	TM	Non-Cytosolic
93	LG:1500434.4:2001MAR30	594	616	forward 1	TM	Transmembrane
93	LG:1500434.4:2001MAR30	617	660	forward 1	TM	Cytosolic
93	LG:1500434.4:2001MAR30	661	683	forward 1	TM	Transmembrane
93	LG:1500434.4:2001MAR30	684	697	forward 1	TM	Non-Cytosolic
93	LG:1500434.4:2001MAR30	698	720	forward 1	TM	Transmembrane
93	LG:1500434.4:2001MAR30	721	726	forward 1	. TM	Cytosolic
93	LG:1500434.4:2001MAR30	727	749	forward 1	TM	Transmembrane
93	LG:1500434.4:2001MAR30	750		forward 1	TM	Non-Cytosolic
93	LG:1500434.4:2001MAR30	764		forward 1	TM	Transmembrane
93	LG:1500434.4:2001MAR30	787		forward 1	TM	Cytosolic
93	LG:1500434.4:2001MAR30	952	974			Transmembrane
93	LG:1500434.4:2001MAR30	975	1002	forward 1	TM	Non-Cytosolic
93	LG:1500434.4:2001MAR30	1003	1025	forward 1	TM	Transmembrane
93	LG:1500434.4:2001MAR30	1026	1023	forward 1	TM	Cytosolic
93	LG:1500434.4:2001MAR30	1020	1121	forward 1	TM	Transmembrane
93	LG:1500434.4:2001MAR30	1122	1135	forward 1	TM	Non-Cytosolic
93	LG:1500434.4:2001MAR30	1136	1158	forward 1	TM	Transmembrane
93	LG:1500434.4:2001MAR30	1159	1249	forward 1	TM	Cytosolic
93	LG:1500434.4:2001MAR30	1139	428	forward 2	TM	Non-Cytosolic
93	LG:1500434.4:2001MAR30	429	451	forward 2	TM	Transmembrane
93 93	LG:1500434.4:2001MAR30	452	551	forward 2	TM	Cytosolic
93	LG:1500434.4:2001MAR30	552	574	forward 2	TM	Transmembrane
93	LG:1500434.4:2001MAR30	575	588	forward 2	TM	Non-Cytosolic
93 93	LG:1500434.4:2001MAR30	589	611	forward 2	TM	Transmembrane
93	LG:1500434.4:2001MAR30	612	696	forward 2	TM	Cytosolic
					TM	•
93	LG:1500434.4:2001MAR30	697	719	forward 2		Transmembrane
93	LG:1500434.4:2001MAR30	720	733	forward 2	TM	Non-Cytosolic
. 93	LG:1500434.4:2001MAR30	734	753	forward 2	TM	Transmembrane
93	LG:1500434.4:2001MAR30	754	834	forward 2	TM	Cytosolic
93	LG:1500434.4:2001MAR30	835	857	forward 2	TM	Transmembrane
93.	LG:1500434.4:2001MAR30	858	871	forward 2	TM	Non-Cytosolic
93	LG:1500434.4:2001MAR30	872	894	forward 2	TM	Transmembrane
93	LG:1500434.4:2001MAR30	895	984	forward 2	TM	Cytosolic
93	LG:1500434.4:2001MAR30	985	1007	forward 2	TM	Transmembrane
93	LG:1500434.4:2001MAR30	1008	1096	forward 2	TM	Non-Cytosolic
93	LG:1500434.4:2001MAR30	1097	1119	forward 2	TM	Transmembrane

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## TABLE 2 Start Stop Domain Type Topology Frame SEQ D NO: Template ID Cytosolic 93 LG:1500434.4:2001MAR30 1120 1145 forward 2 TM 1168 forward 2 TM Transmembrane 93 LG:1500434.4:2001MAR30 1146 1172 forward 2 TM Non-Cytosolic 93 LG:1500434.4:2001MAR30 1169 Transmembrane 1173 1195 forward 2 TM 93 LG:1500434.4:2001MAR30 1196 1249 forward 2 TM Cytosolic 93 LG:1500434.4:2001MAR30 LG:1500434.4:2001MAR30 1 511 forward 3 TM Non-Cytosolic 93 512 531 forward 3 TM Transmembrane 93 LG:1500434.4:2001MAR30 551 forward 3 TM Cytosolic 532 93 LG:1500434.4:2001MAR30 574 TM Transmembrane LG:1500434.4:2001MAR30 552 forward 3 93 575 610 forward 3 TM Non-Cytosolic 93 LG:1500434.4:2001MAR30 611 633 forward 3 TM Transmembrane LG:1500434.4:2001MAR30 93 634 655 forward 3 TM Cytosolic 93 LG:1500434.4:2001MAR30 678 656 forward 3 TM Transmembrane 93 LG:1500434.4:2001MAR30 679 697 forward 3 TM Non-Cytosolic 93 LG:1500434.4:2001MAR30 LG:1500434.4:2001MAR30 698 720 forward 3 TM Transmembrane 93 721 732 forward 3 TM Cytosolic 93 LG:1500434.4:2001MAR30 755 TM Transmembrane 733 forward 3 93 LG:1500434.4:2001MAR30 963 Non-Cytosolic 93 LG:1500434.4:2001MAR30 756 forward 3 TM 986 Transmembrane 93 LG:1500434.4:2001MAR30 964 forward 3 TM 987 998 forward 3 TM Cytosolic 93 LG:1500434.4:2001MAR30 1021 Transmembrane 999 forward 3 TM 93 LG:1500434.4:2001MAR30 1060 forward 3 TM Non-Cytosolic 93 1022 LG:1500434.4:2001MAR30 Transmembrane 1078 forward 3 TM 1061 93 LG:1500434.4:2001MAR30 Cytosolic 1145 TM 93 LG:1500434.4:2001MAR30 1079 forward 3 Transmembrane 1146 1168 forward 3 TM 93 LG:1500434.4:2001MAR30 forward 3 TM. Non-Cytosolic 93 LG:1500434.4:2001MAR30 1169 1171 LG:1500434.4:2001MAR30 Transmembrane 93 1172 1189 forward 3 TM1190 1208 forward 3 TM Cytosolic LG:1500434.4:2001MAR30 93 1209 1231 forward 3 TM Transmembrane 93 LG:1500434.4:2001MAR30 Non-Cytosolic 1232 1249 forward 3 TM 93 LG:1500434.4:2001MAR30 Non-Cytosolic 94 LG:1501102.4:2001MAR30 45 forward 1 TM 1 Transmembrane 94 LG:1501102.4:2001MAR30 46 68 forward 1 TM LG:1501102.4:2001MAR30 69 98 forward 1 Cytosolic 94 TM Transmembrane LG:1501102.4:2001MAR30 99 121 forward 1 TM 94 122 forward 1 TM Non-Cytosolic 426 94 LG:1501102.4:2001MAR30 Cytosolic TM 91 forward 3 94 LG:1501102.4:2001MAR30 1 Transmembrane 92 94 LG:1501102.4:2001MAR30 111 forward 3 TM Non-Cytosolic 112 114 forward 3 TM 94 LG:1501102.4:2001MAR30 TM Transmembrane 94 LG:1501102.4:2001MAR30 115 134 forward 3 Cytosolic 135 170 forward 3 TM 94 LG:1501102.4:2001MAR30 TM Transmembrane 171 193 forward 3 94 LG:1501102.4:2001MAR30 Non-Cytosolic 194 forward 3 TM 94 LG:1501102.4:2001MAR30 425 Cytosolic 95 6 forward 1 TM LG:1501768.2:2001MAR30 1 7 29 TM Transmembrane 95 LG:1501768.2:2001MAR30 forward 1 95 30 85 forward 1 TM Non-Cytosolic LG:1501768.2:2001MAR30 1 315 forward 2 TM Non-Cytosolic 96 LG:1502155.6:2001MAR30 Transmembrane 316 TM 96 LG:1502155.6:2001MAR30 338 forward 2 96 339 401 forward 2 TM Cytosolic LG:1502155.6:2001MAR30 97 LG:1512304.2:2001MAR30 1 92 forward 1 TM Cytosolic Transmembrane 97 LG:1512304.2:2001MAR30 93 115 forward 1 TM Non-Cytosolic TM 97 LG:1512304.2:2001MAR30 116 180 forward 1 Transmembrane 97 LG:1512304.2:2001MAR30 181 203 forward 1 TM Cytosolic 97 LG:1512304.2:2001MAR30 204 245 forward 1 TM Transmembrane 246 268 TM

forward 1

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LG:1512304.2:2001MAR30

Topology
Non-Cytosolic
Non-Cytosolic
Transmembrane
Cytosolic
Transmembrane
Non-Cytosolic
Transmembrane
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Cytosolic
Transmembrane
Non-Cytosolic
Transmembrane
Cytosolic
Non-Cytosolic

		TAB	LE 2		
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type
97	LG:1512304.2:2001MAR30	269	278	forward 1	TM
97	LG:1512304.2:2001MAR30	1	240	forward 2	TM
97	LG:1512304.2:2001MAR30	241	263	forward 2	TM
97	LG:1512304.2:2001MAR30	264	278	forward 2	TM
97	LG:1512304.2:2001MAR30	1	89	forward 3	· TM
97	LG:1512304.2:2001MAR30	90	112	forward 3	TM
97	LG:1512304.2:2001MAR30	113	137	forward 3	TM
97	LG:1512304.2:2001MAR30	138	160	forward 3	TM
97	LG:1512304.2:2001MAR30	161	176	forward 3	TM
97	LG:1512304.2:2001MAR30	177	199	forward 3	TM
97	LG:1512304.2:2001MAR30	200	231	forward 3	TM
97	LG:1512304.2:2001MAR30	232	254	forward 3	TM
97	LG:1512304.2:2001MAR30	255	277	forward 3	TM
98	LG:1512931.11:2001MAR30	1	260	forward 2	TM
98	LG:1512931.11:2001MAR30	261	280	forward 2	TM
98	LG:1512931.11:2001MAR30	281	296	forward 2	TM
98	LG:1512931.11:2001MAR30	1	260	forward 3	TM
98	LG:1512931.11:2001MAR30	261	283	forward 3	TM
98	LG:1512931.11:2001MAR30	284	296	forward 3	TM
99	LG:155076.18:2001MAR30	1	1165	forward 2	TM
99	LG:155076.18:2001MAR30	1166	1188	forward 2	TM
99	LG:155076.18:2001MAR30	1189	1194	forward 2	TM

Transmembrane Cytosolic Cytosolic Transmembrane Non-Cytosolic Non-Cytosolic Transmembrane Cytosolic 99 LG:155076.18:2001MAR30 1195 1214 forward 2 TM Transmembrane 99 LG:155076.18:2001MAR30 1215 1590 forward 2 MT Non-Cytosolic 100 LG:159111.41:2001MAR30 1 193 forward 1 TM Non-Cytosolic 194 100 LG:159111.41:2001MAR30 216 forward I' TM Transmembrane · 100 217 351 LG:159111.41:2001MAR30 forward 1 TM Cytosolic 100 LG:159111.41:2001MAR30 374 352 forward 1 TM Transmembrane 100 LG:159111.41:2001MAR30 375 383 forward 1 TM Non-Cytosolic 100 LG:159111.41:2001MAR30 384 406 forward 1 TM Transmembrane 100 LG:159111.41:2001MAR30 407 412 forward 1 TM Cytosolic 100 LG:159111.41:2001MAR30 413 430 forward 1 TM Transmembrane 100 LG:159111.41:2001MAR30 2269 forward 1 Non-Cytosolic 431 TM 100 LG:159111.41:2001MAR30 forward 3 Non-Cytosolic ì 191 TM 100 LG:159111.41:2001MAR30 192 214 forward 3 TM Transmembrane 100 LG:159111.41:2001MAR30 215 382 forward 3 TM Cytosolic 100 405 LG:159111.41:2001MAR30 383 forward 3 TM Transmembrane 100 LG:159111.41:2001MAR30 406 2269 forward 3 TM Non-Cytosolic 101 LG:170604.1:2001MAR30 240 1 forward 3 TM Cytosolic 101 LG:170604.1:2001MAR30 241 260 forward 3 TM Transmembrane 101 LG:170604.1:2001MAR30 261 262 forward 3 TM Non-Cytosolic 102 LG:190477.4:2001MAR30 1 .4 forward 1 TM Non-Cytosolic 102 LG:190477.4:2001MAR30 5 27 forward 1 TM Transmembrane 102 LG:190477.4:2001MAR30 28 70 forward 1 TM Cytosolic 102 71 93 LG:190477.4:2001MAR30 forward 1 TM Transmembrane 102 LG:190477.4:2001MAR30 94 124 forward 1 TM Non-Cytosolic 102 125 LG:190477.4:2001MAR30 147 forward 1 TM Transmembrane forward 1 102 LG:190477.4:2001MAR30 148 153 TM Cytosolic 102 LG:190477.4:2001MAR30 176 154 forward 1 TM Transmembrane LG:190477.4:2001MAR30 207 102 177 forward 1 TM Non-Cytosolic

208

231

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230

341

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401

forward 1

forward 1

forward 1

forward 1

TM

TM

TM

TM

Transmembrane

Cytosolic

Transmembrane

Non-Cytosolic

102

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102

102

LG:190477.4:2001MAR30

LG:190477.4:2001MAR30

LG:190477.4:2001MAR30

LG:190477.4:2001MAR30

		TABI	E2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
102	LG:190477.4:2001MAR30	402	421	forward 1	TM	Transmembrane
102	LG:190477.4:2001MAR30	422	427	forward 1	TM	Cytosolic
102	LG:190477.4:2001MAR30	428	445	forward 1	TM	Transmembrane
102	LG:190477.4:2001MAR30	446	449	forward 1	TM	Non-Cytosolic
102	LG:190477.4:2001MAR30	450	472	forward 1	TM	Transmembrane
102	LG:190477.4:2001MAR30	473	502	forward 1	TM	Cytosolic ·
102	LG:190477.4:2001MAR30	503	525	forward 1	TM	Transmembrane
102	LG:190477.4:2001MAR30	526	623	forward 1	TM	Non-Cytosolic
102	LG:190477.4:2001MAR30	624	646	forward 1	TM	Transmembrane
102	LG:190477.4:2001MAR30	647	652	forward 1	TM	Cytosolic
102	LG:190477.4:2001MAR30	653	672	forward 1	TM	Transmembrane
102	LG:190477.4:2001MAR30	673	691	forward 1	TM	Non-Cytosolic
102	LG:190477.4:2001MAR30	692	714	forward 1	TM	Transmembrane
102	LG:190477.4:2001MAR30	715	720	forward 1	TM	Cytosolic
102	LG:190477.4:2001MAR30	721	743	forward 1	TM	Transmembrane
102	LG:190477.4:2001MAR30	744	757	forward 1	TM	Non-Cytosolic
102	LG:190477.4:2001MAR30	758	780	forward 1	TM	Transmembrane
102	LG:190477.4:2001MAR30	781	827	forward 1	TM	Cytosolic
102	LG:190477.4:2001MAR30	1	51	forward 2	TM	Cytosolic
102	LG:190477.4:2001MAR30	52	74	forward 2	TM	Transmembrane
102	LG:190477.4:2001MAR30	75	83	forward 2	TM	Non-Cytosolic
102	LG:190477.4:2001MAR30	84	106	forward 2	TM	Transmembrane
102	LG:190477.4:2001MAR30	107	126	forward 2	TM	Cytosolic
102	LG:190477.4:2001MAR30	127	149	forward 2	.TM	Transmembrane
102	LG:190477.4:2001MAR30	150	579	forward 2	TM	Non-Cytosolic
102	LG:190477.4:2001MAR30	580	602	forward 2	TM	Transmembrane
102	LG:190477.4:2001MAR30	603	622	forward 2	TM	Cytosolic
102	LG:190477.4:2001MAR30	623	645	forward 2	TM	Transmembrane
102 ·	LG:190477.4:2001MAR30	646	664	forward 2	TM	Non-Cytosolic
102	LG:190477.4:2001MAR30	665	682	forward 2	TM	Transmembrane
102	LG:190477.4:2001MAR30	683	826	forward 2	TM	Cytosolic
102	LG:190477.4:2001MAR30	1	65	forward 3	TM	Cytosolic
102	LG:190477.4:2001MAR30	66	83	forward 3	TM	Transmembrane
102	LG:190477.4:2001MAR30	·84	97	forward 3	TM	Non-Cytosolic
102	LG:190477.4:2001MAR30	98	117	forward 3	TM	Transmembrane
102	LG:190477.4:2001MAR30	118	123	forward 3	TM	Cytosolic
102.	LG:190477.4:2001MAR30	124	146	forward 3	TM	Transmembrane
102	LG:190477.4:2001MAR30	147	206	forward 3	TM	Non-Cytosolic
102	LG:190477.4:2001MAR30	207	229	forward 3	TM	Transmembrane
102	LG:190477,4:2001MAR30	230	283	forward 3	TM	Cytosolic
102	LG:190477.4:2001MAR30	284	306	forward 3	TM	Transmembrane
102	LG:190477.4:2001MAR30	307	333	forward 3	TM	Non-Cytosolic
102	LG:190477.4:2001MAR30	334	356	forward 3	TM	Transmembrane
102	LG:190477.4:2001MAR30	357	399	forward 3	TM	Cytosolic
102	LG:190477.4:2001MAR30	400	417	forward 3	TM	Transmembrane
102	LG:190477.4:2001MAR30	418	436	forward 3	TM	Non-Cytosolic
102	LG:190477.4:2001MAR30	437	456	forward 3	TM	Transmembrane
102	LG:190477.4:2001MAR30	457	584	forward 3	TM	Cytosolic
102	LG:190477.4:2001MAR30	585	607	forward 3	TM	Transmembrane
102	LG:190477.4:2001MAR30	608	626	forward 3	TM	Non-Cytosolic
102	LG:190477.4:2001MAR30	627	649	forward 3	TM	Transmembrane
102	LG:190477.4:2001MAR30	650	661	forward 3	TM	Cytosolic
102	LG:190477.4:2001MAR30	662	684	forward 3	TM	Transmembrane
102	LG:190477.4:2001MAR30	685	693	forward 3	TM	Non-Cytosolic

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SEQ D NO:		Start	Stop	Frame	Domain Type	Topology
102	LG:190477.4:2001MAR30	694	713	forward 3	TM	Transmembrane
102	LG:190477.4:2001MAR30	714	719	forward 3	TM	Cytosolic
102	LG:190477.4:2001MAR30	720	742	forward 3	TM	Transmembrane
102	LG:190477.4:2001MAR30	743	756	forward 3	TM	Non-Cytosolic
102	LG:190477.4:2001MAR30	757	779	forward 3	TM	Transmembrane
102	LG:190477.4:2001MAR30	780	826	forward 3	TM	Cytosolic
103	LG:198087.8:2001MAR30	1	312	forward 2	TM	Non-Cytosolic
103	LG:198087.8:2001MAR30	313	335	forward 2	TM	Transmembrane
103	LG:198087.8:2001MAR30	336	399	forward 2	TM	Cytosolic
103	LG:198087.8:2001MAR30	400	419	forward 2	TM	Transmembrane
103	LG:198087.8:2001MAR30	420	433	forward 2	TM	Non-Cytosolic
103	LG:198087.8:2001MAR30	434	456	forward 2	TM	Transmembrane
103	LG:198087.8:2001MAR30	457	468	forward 2	TM	Cytosolic
103	LG:198087.8:2001MAR30	469	491	forward 2	TM	Transmembrane
. 103	LG:198087.8:2001MAR30	492	584	forward 2	TM	Non-Cytosolic
103	LG:198087.8:2001MAR30	585	607	forward 2	TM	Transmembrane
103	LG:198087.8:2001MAR30	608	781	forward 2	TM	Cytosolic
103	LG:198087.8:2001MAR30	782	804	forward 2	TM	Transmembrane
103	LG:198087.8:2001MAR30	805	835	forward 2	TM	Non-Cytosolic
103	LG:198087.8:2001MAR30	836	858	forward 2	TM	Transmembrane
103	LG:198087.8:2001MAR30	859	864	forward 2	TM	Cytosolic
103	LG:198087.8:2001MAR30	865	887	forward 2	TM	Transmembrane
103	LG:198087.8:2001MAR30	888	997	forward 2	TM	Non-Cytosolic
103	LG:198087.8:2001MAR30	998	1017	forward 2	TM	Transmembrane
103	LG:198087.8:2001MAR30	1018	1023	forward 2	TM	Cytosolic
103	LG:198087.8:2001MAR30	1024	1046	forward 2	TM	Transmembrane
103	LG:198087.8:2001MAR30	1047	1055	forward 2	TM ·	Non-Cytosolic
103	LG:198087.8:2001MAR30	1056	1073	forward 2	TM	Transmembrane
103	LG:198087.8:2001MAR30	1074	1310	forward 2	TM	Cytosolic
103	LG:198087.8:2001MAR30	1	405	forward 3	TM	Non-Cytosolic
103	LG:198087.8:2001MAR30	406	428	forward 3	TM	Transmembrane
103	LG:198087.8:2001MAR30	429	434	forward 3	TM	Cytosolic
103	LG:198087.8:2001MAR30	435	457	forward 3	TM	Transmembrane
103	LG:198087.8:2001MAR30	458	987	forward 3	TM	Non-Cytosolic
103	LG:198087.8:2001MAR30	988	1010	forward 3	TM	Transmembrane
103	LG:198087.8:2001MAR30	1011	1022	forward 3	TM	Cytosolic
103	LG:198087.8:2001MAR30	1023	1040	forward 3	TM	Transmembrane
103	LG:198087.8:2001MAR30	1041	1054	forward 3	TM	Non-Cytosolic
103	LG:198087.8:2001MAR30	1055	1072	forward 3	TM	Transmembrane
103	LG:198087.8:2001MAR30	1073	1310	forward 3	TM	Cytosolic
104	LG:198743.2:2001MAR30	1	1132	forward 1	TM	Non-Cytosolic
104	LG:198743.2:2001MAR30	1133	1152	forward 1	TM	Transmembrane
104	LG:198743.2:2001MAR30	1153	1164	forward 1	TM	Cytosolic
104	LG:198743.2:2001MAR30	1165	1187	forward 1	TM	Transmembrane
104	LG:198743.2:2001MAR30	1188	1215	forward 1	TM	Non-Cytosolic
. 104	LG:198743.2:2001MAR30	1	1038	forward 2	TM	Non-Cytosolic
104	LG:198743.2:2001MAR30	1039	1058	forward 2	TM	Transmembrane
104	LG:198743.2:2001MAR30	1059	1105	forward 2	TM	Cytosolic
104	LG:198743.2:2001MAR30	1106	1128	forward 2	TM	Transmembrane
104	LG:198743.2:2001MAR30	1129	1215	forward 2	TM	Non-Cytosolic
104	LG:198743.2:2001MAR30	1	983	forward 3	TM	Non-Cytosolic
104	LG:198743.2:2001MAR30	984	1006	forward 3	TM `	Transmembrane
104	LG:198743.2:2001MAR30	1007	1012	forward 3	TM	Cytosolic
104	LG:198743.2:2001MAR30	1013	1035	forward 3	TM	Transmembrane

SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
104	LG:198743.2:2001MAR30	1036	1044	forward 3	TM	Non-Cytosolic
104	LG:198743.2:2001MAR30	1045	1067	forward 3	TM	Transmembrane
. 104	LG:198743.2:2001MAR30	1068	1214	forward 3	TM	Cytosolic
105	LG:199194.1:2001MAR30	1	75	forward 1	TM	Cytosolic
105	LG:199194.1:2001MAR30	76	95	forward 1	TM	Transmembrane
105	LG:199194.1:2001MAR30	96	1183	forward 1	TM	Non-Cytosolic
105	LG:199194.1:2001MAR30	1	479	forward 3	TM	Non-Cytosolic
105	LG:199194.1:2001MAR30	480	502	forward 3	TM	Transmembrane
105	LG:199194.1:2001MAR30	503	597	forward 3	TM	Cytosolic
105	LG:199194.1:2001MAR30	598	617	forward 3	TM	Transmembrane
105	LG:199194.1:2001MAR30	618	631	forward 3	TM	Non-Cytosolic
	LG:199194.1:2001MAR30	632	654	forward 3	TM	Transmembrane
105		655	658	forward 3	TM	Cytosolic
105	LG:199194.1:2001MAR30	659	681	forward 3	TM	Transmembrane
105	LG:199194.1:2001MAR30	682	1182	forward 3	TM	Non-Cytosolic
105	LG:199194.1:2001MAR30					_
106	LG:200727.6:2001MAR30	1	351	forward 2	TM	Non-Cytosolic
106	LG:200727.6:2001MAR30	352	374	forward 2	TM	Transmembrane
106	LG:200727.6:2001MAR30	375	474	forward 2	TM	Cytosolic
107	LG:201572.20:2001MAR30	1	12	forward 1	TM	Non-Cytosolic
107	LG:201572.20:2001MAR30	13	35	forward 1	TM	Transmembrane
107	LG:201572.20:2001MAR30	36	74	forward 1	TM	Cytosolic
107	LG:201572.20:2001MAR30	75	97	forward 1	TM	Transmembrane
107	LG:201572.20:2001MAR30	98	185	forward 1	TM	Non-Cytosolic
107 .	LG:201572.20:2001MAR30	186	203	forward 1	TM	Transmembrane
107	LG:201572.20:2001MAR30	204	485	forward 1	TM	Cytosolic
	LG:201572.20:2001MAR30	. 486	508	forward 1	TM	Transmembrane
107	LG:201572.20:2001MAR30	509	546	forward 1	TM	Non-Cytosolic
107	LG:201572.20:2001MAR30	547 <sup>-</sup>	569	forward 1	TM	Transmembrane
107	LG:201572.20:2001MAR30	570	589	forward 1	TM	Cytosolic
107	LG:201572.20:2001MAR30	590	612	forward 1	TM	Transmembrane
107	LG:201572.20:2001MAR30	613	706	forward 1	TM	Non-Cytosolic
107	LG:201572.20:2001MAR30	707	729	forward 1	TM	Transmembrane
107	LG:201572.20:2001MAR30	730	861	forward 1	TM	Cytosolic
107	LG:201572.20:2001MAR30	862	884	forward 1	TM	Transmembrane
107	LG:201572.20:2001MAR30	885	898	forward 1	TM	Non-Cytosolic
107	LG:201572.20:2001MAR30	899	918	forward 1	TM	Transmembrane
107	LG:201572.20:2001MAR30	919	930	forward 1	TM	Cytosolic
107	LG:201572.20:2001MAR30	931	948	forward 1	TM	Transmembrane
107	LG:201572.20:2001MAR30	949	1215	forward 1	TM	Non-Cytosolic
107	LG:201572.20:2001MAR30	1	14	forward 2	TM	Non-Cytosolic
107	LG:201572.20:2001MAR30	15	37	forward 2	TM	Transmembrane
107	LG:201572.20:2001MAR30	38	234	forward 2	TM	Cytosolic
107	LG:201572.20:2001MAR30	235	257	forward 2	TM	Transmembrane
107	LG:201572.20:2001MAR30	258	486	forward 2	TM	Non-Cytosolic
107	LG:201572.20:2001MAR30	487	505	forward 2	TM	Transmembrane
107	LG:201572.20:2001MAR30	506	589	forward 2	TM	Cytosolic
107	LG:201572.20:2001MAR30	590	612	forward 2	TM	Transmembrane
107	LG:201572.20:2001MAR30	613	703	forward 2	TM	Non-Cytosolic
107	LG:201572.20:2001MAR30	704	726	forward 2	TM	Transmembrane
107	LG:201572.20:2001MAR30	727	790	forward 2	TM	Cytosolic
107	LG:201572.20:2001MAR30	791	813	forward 2	TM	Transmembrane
107	LG:201572.20:2001MAR30	814	897	forward 2	TM	Non-Cytosolic
107	LG:201572.20:2001MAR30	898	920	forward 2	TM	Transmembrane
107	LG:201572.20:2001MAR30	921	938	forward 2	TM	Cytosolic

SEQ D.NO:	SEO D NO.	Tomplete ID	Start	Stop	Frame	Domain Type	Topology
107		· · · · · · · · · · · · · · · · · · ·		•			,
107						_ <del>_</del>	
107							· ·
107							
107							•
107							-
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107							•
107							
107	107			-	forward 3		•
107	107	LG:201572.20:2001MAR30					Transmembrane
107	107	LG:201572.20:2001MAR30	204		forward 3		•
107	107	LG:201572.20:2001MAR30	349		forward 3	TM	Transmembrane
107	107	LG:201572.20:2001MAR30	369	494	forward 3	TM	Non-Cytosolic
107	107	LG:201572.20:2001MAR30	495	517	forward 3	TM	Transmembrane
107	107	LG:201572.20:2001MAR30	518	523	forward 3	TM	Cytosolic
107	107	LG:201572.20:2001MAR30	524	542	forward 3	TM	Transmembrane
107	107	LG:201572.20:2001MAR30	543	561	forward 3	TM	Non-Cytosolic
107	107	LG:201572.20:2001MAR30	562	584	forward 3	TM	Transmembrane
107	107	LG:201572.20:2001MAR30	585	590	forward 3	TM	Cytosolic
107					forward 3		•
107					forward 3		
107					forward 3		•
107					forward 3		
107							•
107         LG:201572.20:2001MAR30         938         960         forward 3         TM         Transmembrane           107         LG:201572.20:2001MAR30         961         1118         forward 3         TM         Cytosolic           107         LG:201572.20:2001MAR30         1119         1141         forward 3         TM         Transmembrane           107         LG:201669.25:2001MAR30         1142         1214         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         1         20         forward 1         TM         Cytosolic           108         LG:201669.25:2001MAR30         21         43         forward 1         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         44         1148         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         195         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         219         244         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         245         267         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30		•					
107         LG:201572.20:2001MAR30         961         1118         forward 3         TM         Cytosolic           107         LG:201572.20:2001MAR30         1119         1141         forward 3         TM         Transmembrane           107         LG:201572.20:2001MAR30         1142         1214         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         1         20         forward 1         TM         Cytosolic           108         LG:201669.25:2001MAR30         21         43         forward 1         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         41         1195         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         1         195         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         219         244         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         245         267         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         272         294         forward 3         TM         Transmembrane           108         LG:201669.25							-
107         LG:201572.20:2001MAR30         1119         1141         forward 3         TM         Transmembrane           107         LG:201572.20:2001MAR30         1 20         forward 1         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         21         43         forward 1         TM         Cytosolic           108         LG:201669.25:2001MAR30         41         1148         forward 1         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         44         1148         forward 1         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         1         195         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         196         218         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         219         244         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         245         267         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         295         320         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30			 				
107         LG:201572.20:2001MAR30         1142         1214         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         1         20         forward 1         TM         Cytosolic           108         LG:201669.25:2001MAR30         21         43         forward 1         TM         Transmembrane           108         LG:201669.25:2001MAR30         44         1148         forward 1         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         1         195         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         196         218         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         219         244         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         245         267         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         272         294         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         321         338         forward 3         TM         Transmembrane           108         LG:201669.25:20							•
108         LG:201669.25:2001MAR30         1         20         forward 1         TM         Cytosolic           108         LG:201669.25:2001MAR30         21         43         forward 1         TM         Transmembrane           108         LG:201669.25:2001MAR30         44         1148         forward 1         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         1         195         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         219         244         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         245         267         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         245         267         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         268         271         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         272         294         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         321         338         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR3							
108         LG:201669.25:2001MAR30         21         43         forward 1         TM         Transmembrane           108         LG:201669.25:2001MAR30         44         1148         forward 1         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         1         195         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         219         244         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         245         267         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         245         267         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         268         271         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         272         294         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         321         338         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         343         360         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2							
108         LG:201669,25:2001MAR30         44         1148         forward 1         TM         Non-Cytosolic           108         LG:201669,25:2001MAR30         1         195         forward 3         TM         Non-Cytosolic           108         LG:201669,25:2001MAR30         196         218         forward 3         TM         Transmembrane           108         LG:201669,25:2001MAR30         219         244         forward 3         TM         Cytosolic           108         LG:201669,25:2001MAR30         245         267         forward 3         TM         Transmembrane           108         LG:201669,25:2001MAR30         268         271         forward 3         TM         Non-Cytosolic           108         LG:201669,25:2001MAR30         272         294         forward 3         TM         Transmembrane           108         LG:201669,25:2001MAR30         295         320         forward 3         TM         Tytosolic           108         LG:201669,25:2001MAR30         321         338         forward 3         TM         Transmembrane           108         LG:201669,25:2001MAR30         343         360         forward 3         TM         Transmembrane           108         LG:201669,25							•
108         LG:201669.25:2001MAR30         1         195         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         196         218         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         219         244         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         245         267         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         268         271         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         272         294         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         295         320         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         321         338         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         343         360         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         361         372         forward 3         TM         Transmembrane           108         LG:201669.25				_			
108         LG:201669.25:2001MAR30         196         218         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         219         244         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         245         267         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         268         271         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         272         294         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         295         320         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         321         338         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         339         342         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         343         360         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         373         392         forward 3         TM         Transmembrane           108         LG:201669.							
108         LG:201669.25:2001MAR30         219         244         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         245         267         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         268         271         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         272         294         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         321         338         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         321         338         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         339         342         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         343         360         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         373         392         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         373         392         forward 3         TM         Non-Cytosolic           108         LG:201							-
108         LG:201669.25:2001MAR30         245         267         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         268         271         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         272         294         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         295         320         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         321         338         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         339         342         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         343         360         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         361         372         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         373         392         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         393         436         forward 3         TM         Transmembrane           108         LG:201							
108         LG:201669.25:2001MAR30         268         271         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         272         294         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         295         320         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         321         338         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         339         342         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         343         360         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         361         372         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         373         392         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         393         436         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         437         454         forward 3         TM         Transmembrane           108         LG:201669.							•
108         LG:201669.25:2001MAR30         272         294         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         295         320         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         321         338         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         339         342         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         343         360         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         361         372         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         373         392         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         393         436         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         437         454         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         455         466         forward 3         TM         Transmembrane           108         LG:201669.							
108         LG:201669.25:2001MAR30         295         320         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         321         338         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         339         342         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         343         360         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         361         372         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         373         392         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         393         436         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         437         454         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         455         466         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         467         489         forward 3         TM         Non-Cytosolic           109         LG:208588.4:2001MA							
108         LG:201669.25:2001MAR30         321         338         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         339         342         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         343         360         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         361         372         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         373         392         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         393         436         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         437         454         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         455         466         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         467         489         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         490         1147         forward 3         TM         Non-Cytosolic           109         LG:208588							
108         LG:201669.25:2001MAR30         339         342         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         343         360         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         361         372         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         373         392         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         393         436         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         437         454         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         455         466         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         467         489         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         490         1147         forward 3         TM         Non-Cytosolic           109         LG:208588.4:2001MAR30         1         35         forward 2         TM         Transmembrane           109         LG:208588.4:2							
108         LG:201669.25:2001MAR30         343         360         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         361         372         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         373         392         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         393         436         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         437         454         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         455         466         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         467         489         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         490         1147         forward 3         TM         Non-Cytosolic           109         LG:208588.4:2001MAR30         1         35         forward 2         TM         Cytosolic           109         LG:208588.4:2001MAR30         36         55         forward 2         TM         Non-Cytosolic           109         LG:208588.4:2001MAR30 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
108         LG:201669.25:2001MAR30         361         372         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         373         392         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         393         436         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         437         454         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         455         466         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         467         489         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         490         1147         forward 3         TM         Non-Cytosolic           109         LG:208588.4:2001MAR30         1         35         forward 2         TM         Cytosolic           109         LG:208588.4:2001MAR30         36         55         forward 2         TM         Transmembrane           109         LG:208588.4:2001MAR30         56         93         forward 2         TM         Non-Cytosolic           110         LG:210412.29:2001MAR30							
108         LG:201669.25:2001MAR30         373         392         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         393         436         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         437         454         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         455         466         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         467         489         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         490         1147         forward 3         TM         Non-Cytosolic           109         LG:208588.4:2001MAR30         1         35         forward 2         TM         Cytosolic           109         LG:208588.4:2001MAR30         36         55         forward 2         TM         Non-Cytosolic           109         LG:208588.4:2001MAR30         56         93         forward 2         TM         Non-Cytosolic           110         LG:210412.29:2001MAR30         1         33         forward 1         TM         Cytosolic							
108         LG:201669.25:2001MAR30         393         436         forward 3         TM         Non-Cytosolic           108         LG:201669.25:2001MAR30         437         454         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         455         466         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         467         489         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         490         1147         forward 3         TM         Non-Cytosolic           109         LG:208588.4:2001MAR30         1         35         forward 2         TM         Cytosolic           109         LG:208588.4:2001MAR30         36         55         forward 2         TM         Non-Cytosolic           109         LG:208588.4:2001MAR30         56         93         forward 2         TM         Non-Cytosolic           110         LG:210412.29:2001MAR30         1         33         forward 1         TM         Cytosolic							•
108         LG:201669.25:2001MAR30         437         454         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         455         466         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         467         489         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         490         1147         forward 3         TM         Non-Cytosolic           109         LG:208588.4:2001MAR30         1         35         forward 2         TM         Cytosolic           109         LG:208588.4:2001MAR30         36         55         forward 2         TM         Non-Cytosolic           109         LG:208588.4:2001MAR30         56         93         forward 2         TM         Non-Cytosolic           110         LG:210412.29:2001MAR30         1         33         forward 1         TM         Cytosolic							
108         LG:201669.25:2001MAR30         455         466         forward 3         TM         Cytosolic           108         LG:201669.25:2001MAR30         467         489         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         490         1147         forward 3         TM         Non-Cytosolic           109         LG:208588.4:2001MAR30         1         35         forward 2         TM         Cytosolic           109         LG:208588.4:2001MAR30         36         55         forward 2         TM         Transmembrane           109         LG:208588.4:2001MAR30         56         93         forward 2         TM         Non-Cytosolic           110         LG:210412.29:2001MAR30         1         33         forward 1         TM         Cytosolic							
108         LG:201669.25:2001MAR30         467         489         forward 3         TM         Transmembrane           108         LG:201669.25:2001MAR30         490         1147         forward 3         TM         Non-Cytosolic           109         LG:208588.4:2001MAR30         1         35         forward 2         TM         Cytosolic           109         LG:208588.4:2001MAR30         36         55         forward 2         TM         Transmembrane           109         LG:208588.4:2001MAR30         56         93         forward 2         TM         Non-Cytosolic           110         LG:210412.29:2001MAR30         1         33         forward 1         TM         Cytosolic							
108       LG:201669.25:2001MAR30       490       1147       forward 3       TM       Non-Cytosolic         109       LG:208588.4:2001MAR30       1       35       forward 2       TM       Cytosolic         109       LG:208588.4:2001MAR30       36       55       forward 2       TM       Transmembrane         109       LG:208588.4:2001MAR30       56       93       forward 2       TM       Non-Cytosolic         110       LG:210412.29:2001MAR30       1       33       forward 1       TM       Cytosolic							
109       LG:208588.4:2001MAR30       1       35       forward 2       TM       Cytosolic         109       LG:208588.4:2001MAR30       36       55       forward 2       TM       Transmembrane         109       LG:208588.4:2001MAR30       56       93       forward 2       TM       Non-Cytosolic         110       LG:210412.29:2001MAR30       1       33       forward 1       TM       Cytosolic							
109       LG:208588.4:2001MAR30       36       55       forward 2       TM       Transmembrane         109       LG:208588.4:2001MAR30       56       93       forward 2       TM       Non-Cytosolic         110       LG:210412.29:2001MAR30       1       33       forward 1       TM       Cytosolic							•
109       LG:208588.4:2001MAR30       56       93       forward 2       TM       Non-Cytosolic         110       LG:210412.29:2001MAR30       1       33       forward 1       TM       Cytosolic							
110 LG:210412.29:2001MAR30 l 33 forward 1 TM Cytosolic							
·							-
110 LG:210412.29:2001MAR30 34 56 forward 1 TM Transmembrane							•
	110	LG:210412.29:2001MAR30	54	20	torward 1	IM	1 ransmembrane

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
110	LG:210412.29:2001MAR30	57	373	forward 1	TM	Non-Cytosolic
110	LG:210412.29:2001MAR30	1	31	forward 2	TM	Non-Cytosolic
110	LG:210412.29:2001MAR30	32	54	forward 2	TM	Transmembrane
110	LG:210412.29:2001MAR30	55	134	forward 2	TM	Cytosolic
110	LG:210412.29:2001MAR30	135	157	forward 2	TM	Transmembrane
110	LG:210412.29:2001MAR30	158	373	forward 2	TM	Non-Cytosolic
110	LG:210412.29:2001MAR30	1	31	forward 3	TM	Cytosolic
110	LG:210412.29:2001MAR30	32	51	forward 3	TM	Transmembrane
110	LG:210412.29:2001MAR30	52	54	forward 3	TM	Non-Cytosolic
110	LG:210412.29:2001MAR30	55	77	forward 3	TM	Transmembrane
110	LG:210412.29:2001MAR30	78	372	forward 3	TM	Cytosolic
111	LG:215051.15:2001MAR30	1	67	forward 1	TM	Non-Cytosolic
111	LG:215051.15:2001MAR30	68	85	forward 1	TM	Transmembrane
111	LG:215051.15:2001MAR30	86	167	forward 1	TM	Cytosolic
111	LG:215051.15:2001MAR30	168	190	forward 1	TM	Transmembrane
111	LG:215051.15:2001MAR30	191	234	forward 1	TM	Non-Cytosolic
111	LG:215051.15:2001MAR30	235	254	forward 1	TM	Transmembrane
111	LG:215051.15:2001MAR30	255	292	forward 1	TM	Cytosolic
111	LG:215051.15:2001MAR30	293	315	forward 1	TM	Transmembrane
111	LG:215051.15:2001MAR30	316	329	forward 1	TM	Non-Cytosolic
111	LG:215051.15:2001MAR30	330	352	forward 1	TM	Transmembrane
111	LG:215051.15:2001MAR30	353	651	forward 1	TM	Cytosolic
111	LG:215051.15:2001MAR30	652	674	forward 1	TM	Transmembrane
111	LG:215051.15:2001MAR30	· 675·	841	forward 1	TM	Non-Cytosolic
111	LG:215051.15:2001MAR30	842	864	forward 1	TM	Transmembrane
111°	LG:215051.15:2001MAR30	865	931	forward 1	TM	Cytosolic
111	LG:215051.15:2001MAR30	1 '	167	forward 3	TM	Non-Cytosolic
111	LG:215051.15:2001MAR30	168	190	forward 3	TM	Transmembrane
111	LG:215051.15:2001MAR30	191	201	forward 3	TM	Cytosolic
111	LG:215051.15:2001MAR30	202	224	forward 3	TM	Transmembrane
111	LG:215051.15:2001MAR30	225	846	forward 3	TM	Non-Cytosolic
111	LG:215051.15:2001MAR30	847	869	forward 3	TM	Transmembrane
311	LG:215051.15:2001MAR30	870	930	forward 3	TM	Cytosolic
112	LG:215475.21:2001MAR30	1	153	forward 1	TM	Cytosolic
112	LG:215475.21:2001MAR30	154	176	forward 1	TM	Transmembrane
112	LG:215475.21:2001MAR30	177	185	forward 1	TM	Non-Cytosolic
112	LG:215475.21:2001MAR30	186	208	forward 1	TM	Transmembrane
112	LG:215475.21:2001MAR30	209	293	forward 1	TM	Cytosolic
112	LG:215475.21:2001MAR30	294	316	forward 1	TM	Transmembrane
112	LG:215475.21:2001MAR30	317	445	forward 1	TM	Non-Cytosolic
112	LG:215475.21:2001MAR30	446	468	forward 1	TM	Transmembrane
112	LG:215475.21:2001MAR30	469	474	forward 1	TM	Cytosolic
112	LG:215475.21:2001MAR30	475	497	forward 1	TM	Transmembrane
112	LG:215475.21:2001MAR30	498	506	forward 1	TM	Non-Cytosolic
112	LG:215475.21:2001MAR30	507	529	forward 1	TM	Transmembrane
112 .	LG:215475.21:2001MAR30	530	580	forward 1	TM	Cytosolic
112	LG:215475.21:2001MAR30	581	603	forward 1	TM	Transmembrane
112	LG:215475.21:2001MAR30	604	622	forward 1	TM	Non-Cytosolic
112	LG:215475.21:2001MAR30	623	641	forward 1	TM	Transmembrane
112	LG:215475.21:2001MAR30	642	647	forward 1	TM TM	Cytosolic
112	LG:215475.21:2001MAR30	648	670	forward 1	TM	Transmembrane
112	LG:215475.21:2001MAR30	671	684	forward 1	TM	Non-Cytosolic
112	LG:215475.21:2001MAR30	685	707	forward 1	TM	Transmembrane
112	LG:215475.21:2001MAR30	708	734	forward 1	TM	Cytosolic

		TABI	.E.2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
3EQ D NO.	LG:215475.21:2001MAR30	735	757	forward 1	TM	Transmembrane
112	LG:215475.21:2001MAR30	758	795	forward 1	TM	Non-Cytosolic
112	LG:215475.21:2001MAR30	796	818	forward I	TM	Transmembrane
112	LG:215475.21:2001MAR30	819	922	forward 1	TM	Cytosolic
112	LG:215475.21:2001MAR30	923	945	forward 1	· TM	Transmembrane
112	LG:215475.21:2001MAR30	946	976	forward 1	TM	Non-Cytosolic
112	LG:215475.21:2001MAR30	977	999	forward 1	TM	Transmembrane
112	LG:215475.21:2001MAR30	1000	1128	forward 1	TM	Cytosolic
112	LG:215475.21:2001MAR30	1	142	forward 2	TM	Cytosolic
112	LG:215475.21:2001MAR30	143	165	forward 2	TM	Transmembrane
112	LG:215475.21:2001MAR30	166	231	forward 2	TM	Non-Cytosolic
112	LG:215475.21:2001MAR30	232	251	forward 2	TM	Transmembrane
112	LG:215475.21:2001MAR30	252	334	forward 2	TM	Cytosolic
112	LG:215475.21:2001MAR30	335	357	forward 2	TM	Transmembrane
112	LG:215475.21:2001MAR30	358	664	forward 2	TM	Non-Cytosolic
112	LG:215475.21:2001MAR30	665	687	forward 2	TM	Transmembrane
112	LG:215475.21:2001MAR30	688	693	forward 2	TM	Cytosolic
112	LG:215475.21:2001MAR30	694	716	forward 2	TM	Transmembrane
112	LG:215475.21:2001MAR30	717	730	forward 2	TM	Non-Cytosolic
112	LG:215475.21:2001MAR30	731	753	forward 2	TM	Transmembrane
112	LG:215475.21:2001MAR30	754	799	forward 2	TM	Cytosolic
112	LG:215475.21:2001MAR30	800	822	forward 2	TM	Transmembrane
112	LG:215475.21:2001MAR30	823	971	forward 2	TM	Non-Cytosolic
112	LG:215475.21:2001MAR30	972	994	forward 2	TM	Transmembrane
112	LG:215475.21:2001MAR30	995	1000	forward 2	· TM	Cytosolic
112	LG:215475.21:2001MAR30	1001	1023	forward 2		Transmembrane
112	LG:215475.21:2001MAR30	1024	1128	forward 2	TM	Non-Cytosolic
112	LG:215475.21:2001MAR30	. 1	589	forward 3	TM	Non-Cytosolic
112	LG:215475.21:2001MAR30	590	612	forward 3	TM	Transmembrane
112	LG:215475.21:2001MAR30	613	793	forward 3	TM	Cytosolic
112	LG:215475.21:2001MAR30	794	816	forward 3	TM	Transmembrane
112	LG:215475.21:2001MAR30	817	1127	forward 3	TM	Non-Cytosolic
113	LG:224523.1:2001MAR30	1	19	forward 1	TM	Non-Cytosolic
113	LG:224523.1:2001MAR30	20	42	forward 1	TM	Transmembrane
113	LG:224523.1:2001MAR30	43	116	forward 1	TM	Cytosolic
113	LG:224523.1:2001MAR30	117	134	forward 1	TM	Transmembrane
113	LG:224523.1:2001MAR30	135	148	forward 1	TM	Non-Cytosolic
113	LG:224523.1:2001MAR30	149	171	forward 1	TM	Transmembrane
113	LG:224523.1:2001MAR30	172	213	forward 1	TM	Cytosolic
113	LG:224523.1:2001MAR30	1	116	forward 2	TM	Cytosolic
113	LG:224523.1:2001MAR30	117	139	forward 2	TM	Transmembrane
113	LG:224523.1:2001MAR30	140	148	forward 2	TM	Non-Cytosolic
113	LG:224523.1:2001MAR30	149	171	forward 2	TM	Transmembrane
113	LG:224523.1:2001MAR30	172	212	forward 2	TM	Cytosolic
113	LG:224523.1:2001MAR30	1	115	forward 3	TM	Cytosolic
113	LG:224523.1:2001MAR30	116	135	forward 3	TM	Transmembrane
113	LG:224523.1:2001MAR30	136	139	forward 3	TM	Non-Cytosolic
113	LG:224523.1:2001MAR30	140	162	forward 3	TM	Transmembrane
113	LG:224523.1:2001MAR30	163	212	forward 3	TM	Cytosolic
114	LG:228186.1:2001MAR30	1	32	forward 1	TM	Non-Cytosolic
114	LG:228186.1:2001MAR30	33	55 105	forward 1	TM	Transmembrane
114	LG:228186.1:2001MAR30	56	105	forward 1	TM	Cytosolic
114	LG:228186.1:2001MAR30	106	125	forward 1	TM	Transmembrane
114	LG:228186.1:2001MAR30	126	139	forward 1	TM	Non-Cytosolic

### TABLE 2 Start Stop Frame Domain Type Topology SEQ D NO: Template ID 162 forward 1 TM LG:228186.1:2001MAR30 140 Transmembrane 114 168 forward 1 TM 114 LG:228186.1:2001MAR30 163 Cytosolic 191 forward 1 TM Transmembrane 114 LG:228186.1:2001MAR30 169 192 1292 forward 1 TM Non-Cytosolic 114 LG:228186.1:2001MAR30 1315 forward 1 TM 114 LG:228186.1:2001MAR30 1293 Transmembrane 1569 forward 1 114 LG:228186.1:2001MAR30 1316 TM Cytosolic 114 LG:228186.1:2001MAR30 1570 1592 forward 1 TM Transmembrane LG:228186.1:2001MAR30 1593 1723 forward 1 TM Non-Cytosolic 114 6 forward 2 TM Cytosolic 114 LG:228186.1:2001MAR30 1 114 LG:228186.1:2001MAR30 7 25 forward 2 TM Transmembrane 114 LG:228186.1:2001MAR30 26 39 forward 2 TM Non-Cytosolic 114 LG:228186.1:2001MAR30 40 62 forward 2 TM Transmembrane forward 2 LG:228186.1:2001MAR30 63 74 TM Cytosolic 114 92 forward 2 114 LG:228186.1:2001MAR30 75 TM Transmembrane 114 LG:228186.1:2001MAR30 93 106 forward 2 TM Non-Cytosolic 107 126 forward 2 TM Transmembrane 114 LG:228186.1:2001MAR30 127 167 forward 2 TM Cytosolic 114 LG:228186.1:2001MAR30 190 forward 2 168 TM Transmembrane 114 LG:228186.1:2001MAR30 191 1316 forward 2 TM Non-Cytosolic 114 LG:228186.1:2001MAR30 114 LG:228186.1:2001MAR30 1317 1339 forward 2 TM Transmembrane 1340 1449 forward 2 TM Cytosolic 114 LG:228186.1:2001MAR30 114 LG:228186.1:2001MAR30 1450 1472 forward 2 TM Transmembrane 1723 1473 forward 2 TM Non-Cytosolic 114 LG:228186.1:2001MAR30 102 forward 3 TM Non-Cytosolic 114 LG:228186.1:2001MAR30 . 1 122 Transmembrane 114 LG:228186.1:2001MAR30 103 forward 3 TM 114 LG:228186.1:2001MAR30 123 134 forward 3 TM Cytosolic LG:228186.1:2001MAR30 157 forward 3 TM Transmembrane 114 .135 114 LG:228186.1:2001MAR30 158 467 forward 3 TM Non-Cytosolic 114 LG:228186.1:2001MAR30 468 485 forward 3 TM Transmembrane 589 114 LG:228186.1:2001MAR30 486 forward 3 TM Cytosolic 114 LG:228186.1:2001MAR30 590 612 forward 3 TM Transmembrane 114 LG:228186.1:2001MAR30 613 1448 forward 3 TM Non-Cytosolic 114 LG:228186.1:2001MAR30 1449 1471 forward 3 TM Transmembrane 114 LG:228186.1:2001MAR30 1472 1594 forward 3 TM Cytosolic 114 LG:228186.1:2001MAR30 1595 1617 forward 3 TM Transmembrane forward 3 Non-Cytosolic 114 LG:228186.1:2001MAR30 1618 1631 TM 1651 Transmembrane 114 1632 forward 3 TM LG:228186.1:2001MAR30 114 LG:228186.1:2001MAR30 1652 1671 forward 3 TM Cytosolic 1672 1694 forward 3 TM Transmembrane 114 LG:228186.1:2001MAR30 114 LG:228186.1:2001MAR30 1695 1722 forward 3 TM Non-Cytosolic 1464 forward 1 TM Non-Cytosolic 115 LG:233138.2:2001MAR30 1 1487 Transmembrane 115 LG:233138.2:2001MAR30 1465 forward 1 TM 1554 115 LG:233138.2:2001MAR30 1488 forward 1 TM Cytosolic 115 LG:233138.2:2001MAR30 434 forward 2 TM Non-Cytosolic 1 115 LG:233138.2:2001MAR30 435 457 forward 2 TM Transmembrane 115 LG:233138.2:2001MAR30 458 463 forward 2 TM Cytosolic 115 LG:233138.2:2001MAR30 464 486 forward 2 TM Transmembrane 115 LG:233138.2:2001MAR30 487 1554 forward 2 TM Non-Cytosolic 116 LG:234811.10:2001MAR30 1 312 forward 1 TM Non-Cytosolic LG:234811.10:2001MAR30 116 313 335 forward 1 TM Transmembrane LG:234811.10:2001MAR30 forward 1 336 350 Cytosolic 116 TM Non-Cytosolic 326 116 LG:234811.10:2001MAR30 1 forward 2 TM 327 346 Transmembrane 116 LG:234811.10:2001MAR30 forward 2 TM 116 LG:234811.10:2001MAR30 347 349 forward 2 TM Cytosolic

		TAB	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
117	LG:236092.1:2001MAR30	1	114	forward 1	TM	Cytosolic
117	LG:236092.1:2001MAR30	115	137	forward 1	TM	Transmembrane
117	LG:236092.1:2001MAR30	138	290	forward 1	TM	Non-Cytosolic
117	LG:236092.1:2001MAR30	291	313	forward 1	TM	Transmembrane
117	LG:236092.1:2001MAR30	314	399	forward 1	TM	Cytosolic
117	LG:236092.1:2001MAR30	400	422	forward 1	TM	Transmembrane
117	LG:236092.1:2001MAR30	423	441	forward 1	TM	Non-Cytosolic
117	LG:236092.1:2001MAR30	442	464	forward 1	TM	Transmembrane
117	LG:236092.1:2001MAR30	465	534	forward 1	TM	Cytosolic
117	LG:236092.1:2001MAR30	535	557	forward 1	TM	Transmembrane
117	LG:236092.1:2001MAR30	558	728	forward 1	TM	Non-Cytosolic
117	LG:236092.1:2001MAR30	1	54	forward 2	TM	Non-Cytosolic
117	LG:236092.1:2001MAR30	55	74	forward 2	TM	Transmembrane
117	LG:236092.1:2001MAR30	75	111	forward 2	TM	Cytosolic
117	LG:236092.1:2001MAR30	112	134	forward 2	TM	Transmembrane
117	LG:236092.1:2001MAR30	135	155	forward 2	TM	Non-Cytosolic
117	LG:236092.1:2001MAR30	156	178	forward 2	TM	Transmembrane
117	LG:236092.1:2001MAR30	179	416	forward 2	TM	Cytosolic
117	LG:236092.1:2001MAR30	417	439	forward 2	TM	Transmembrane
117	LG:236092.1:2001MAR30	440	448	forward 2	TM	Non-Cytosolic
117	LG:236092.1:2001MAR30	449	471	forward 2	TM	Transmembrane
117	LG:236092.1:2001MAR30	472	526	forward 2	TM	Cytosolic
117	LG:236092.1:2001MAR30	527	549	forward 2	TM	Transmembrane
117	LG:236092.1:2001MAR30	550	591·	forward 2	TM	Non-Cytosolic
117	LG:236092.1:2001MAR30	592	609	forward 2	TM	Transmembrane
117	LG:236092.1:2001MAR30	-610	728	forward 2	· TM	Cytosolic
117	LG:236092.1:2001MAR30	1	. 14	forward 3	TM	Non-Cytosolic
117	LG:236092.1:2001MAR30	15	37	forward 3	TM	Transmembrane
117	LG:236092.1:2001MAR30	38 -	57	forward 3	TM	Cytosolic
117	LG:236092.1:2001MAR30	58	80	forward 3	TM	Transmembrane
117	LG:236092.1:2001MAR30	81	111	forward 3	TM	Non-Cytosolic
117	LG:236092.1:2001MAR30	112	131	forward 3	TM	Transmembrane
117	LG:236092.1:2001MAR30	132	143	forward 3	TM	Cytosolic
117	LG:236092.1:2001MAR30	144	166	forward 3	TM	Transmembrane
117	LG:236092.1:2001MAR30	167	453	forward 3	TM	Non-Cytosolic
117	LG:236092.1:2001MAR30	454	476	forward 3	TM	Transmembrane
117	LG:236092.1:2001MAR30	477	551	forward 3	TM	Cytosolic
117	LG:236092.1:2001MAR30	552	574	forward 3	TM	Transmembrane
117	LG:236092.1:2001MAR30	575	593	forward 3	TM	Non-Cytosolic
117	LG:236092.1:2001MAR30	594	616	forward 3	TM	Transmembrane
117	LG:236092.1:2001MAR30	617	622	forward 3	TM	Cytosolic
117	LG:236092.1:2001MAR30	623	642	forward 3	TM	Transmembrane
117	LG:236092.1:2001MAR30	643	673	forward 3	TM	Non-Cytosolic
117	LG:236092.1:2001MAR30	674	696	forward 3	TM	Transmembrane
117	LG:236092.1:2001MAR30	697	727	forward 3	TM	Cytosolic
118	LG:236098.12:2001MAR30	1	437	forward 1	TM	Non-Cytosolic
118	LG:236098.12:2001MAR30	438	460	forward 1	TM	Transmembrane
118	LG:236098.12:2001MAR30	461	504	forward 1	TM	Cytosolic
118	LG:236098.12:2001MAR30	505	526	forward 1	TM	Transmembrane
118	LG:236098.12:2001MAR30	527	1270	forward 1	TM	Non-Cytosolic
118	LG:236098.12:2001MAR30	1271	1293	forward 1	TM	Transmembrane
118	LG:236098.12:2001MAR30	1294		forward 1	TM	Cytosolic
118	LG:236098.12:2001MAR30	1347	1369	forward 1	TM	Transmembrane
118	LG:236098.12:2001MAR30	1370	1378	forward 1	TM	Non-Cytosolic
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676 P 176	T 1. ID	Circle	C4	Frame	Domain Type	Topology
SEQ D NO:	Template ID	Start	Stop		TM	Transmembrane
118	LG:236098.12:2001MAR30	1379	1401 1421	forward I	TM	Cytosolic
118	LG:236098.12:2001MAR30	1402				Transmembrane
118	LG:236098.12:2001MAR30	1422	1444	forward 1	TM	
118	LG:236098.12:2001MAR30	1445	1458	forward 1	TM	Non-Cytosolic
118	LG:236098.12:2001MAR30	1459	1481	forward I	TM	Transmembrane
118	LG:236098.12:2001MAR30	1482	1494	forward 1	TM	Cytosolic
118	LG:236098.12:2001MAR30	1	400	forward 2	TM	Non-Cytosolic
118	LG:236098.12:2001MAR30	401	423	forward 2	TM	Transmembrane
118	LG:236098.12:2001MAR30	424	442	forward 2	TM	Cytosolic
118	LG:236098.12:2001MAR30	443	460	forward 2	TM	Transmembrane
118	LG:236098.12:2001MAR30	461	469	forward 2	TM	Non-Cytosolic
118	LG:236098.12:2001MAR30	470	487	forward 2	TM	Transmembrane
118	LG:236098.12:2001MAR30	488	499	forward 2	TM	Cytosolic
118	LG:236098.12:2001MAR30	500	522	forward 2	TM	Transmembrane
118	LG:236098.12:2001MAR30	523	541	forward 2	TM	Non-Cytosolic
118	LG:236098.12:2001MAR30	542	564	forward 2	TM	Transmembrane
118	LG:236098.12:2001MAR30	565	584	forward 2	TM	Cytosolic
118	LG:236098.12:2001MAR30	585	602	forward 2	TM	Transmembrane
118	LG:236098.12:2001MAR30	603	616	forward 2	TM	Non-Cytosolic
118	LG:236098.12:2001MAR30	617	639	forward 2	TM	Transmembrane
118	LG:236098.12:2001MAR30	640	888	forward 2	TM	Cytosolic
118	LG:236098.12:2001MAR30	889	911	forward 2	TM	Transmembrane
118	LG:236098.12:2001MAR30	912	920	forward 2	TM	Non-Cytosolic
118	LG:236098.12:2001MAR30	921	943	forward 2	TM	Transmembrane
118	LG:236098.12:2001MAR30	944	963	forward 2	TM	Cytosolic
118	LG:236098.12:2001MAR30	964	986	forward 2	TM	Transmembrane
118	LG:236098.12:2001MAR30	987	1005	forward 2	TM	Non-Cytosolic
118	LG:236098.12:2001MAR30	1006	1028	forward 2	TM	Transmembrane
118	LG:236098.12:2001MAR30	1029	1169	forward 2	TM	Cytosolic
118	LG:236098.12:2001MAR30	1170	1192	forward 2	TM	Transmembrane
118	LG:236098.12:2001MAR30	1193	1494	forward 2	TM	Non-Cytosolic
118	LG:236098.12:2001MAR30	1	433	forward 3	TM	Non-Cytosolic
118	LG:236098.12:2001MAR30	434	456	forward 3	TM	Transmembrane
118	LG:236098.12:2001MAR30	457	492	forward 3	TM	Cytosolic
118	LG:236098.12:2001MAR30	493	515	forward 3	TM	Transmembrane
118	LG:236098.12:2001MAR30	516	529	forward 3	TM	Non-Cytosolic
118	LG:236098.12:2001MAR30	530	552	forward 3	TM	Transmembrane
118	LG:236098.12:2001MAR30	553	615	forward 3	TM	Cytosolic
118	LG:236098.12:2001MAR30	616	638	forward 3	TM	Transmembrane
118	LG:236098.12:2001MAR30	639	759	forward 3	TM	Non-Cytosolic
118	LG:236098.12:2001MAR30	760	782	forward 3	TM	Transmembrane
118	LG:236098.12:2001MAR30	783	898	forward 3	TM	Cytosolic
118	LG:236098.12:2001MAR30	899	921	forward 3	TM	Transmembrane
118	LG:236098.12:2001MAR30	922	935	forward 3	TM	Non-Cytosolic
118	LG:236098.12:2001MAR30	936	953	forward 3	TM	Transmembrane
118	LG:236098.12:2001MAR30	954	957	forward 3	TM	Cytosolic
	LG:236098.12:2001MAR30	958	980	forward 3	TM	Transmembrane
118 118	LG:236098.12:2001MAR30	981	1494	forward 3	TM	Non-Cytosolic
	LG:236697.15:2001MAR30	1	90		TM	Cytosolic
119	LG:236697.15:2001MAR30	91	113	forward 1	TM	Transmembrane
119	LG:236697.15:2001MAR30	114	127	forward 1	TM	Non-Cytosolic
119	LG:236697.15:2001MAR30	128	150	forward 1	TM	Transmembrane
119	LG:236697.15:2001MAR30 LG:236697.15:2001MAR30	151	219	forward 1	TM	Cytosolic
119		220	239	forward 1	TM	Transmembrane
119	LG:236697.15:2001MAR30	220	239	ioi waru 1	Y 1A1	Transmemorane

		TABI	E 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
3EQ D NO.	LG:236697.15:2001MAR30	240	258	forward 1	TM	Non-Cytosolic
119	LG:236697.15:2001MAR30	259	281	forward 1	TM	Transmembrane
119	LG:236697.15:2001MAR30	282	287	forward 1	TM	Cytosolic
119	LG:236697.15:2001MAR30	288	307	forward 1	TM	Transmembrane
119	LG:236697.15:2001MAR30	308	316	forward 1	TM	Non-Cytosolic
119	LG:236697.15:2001MAR30	317	336	forward I	TM	Transmembrane
119	LG:236697.15:2001MAR30	337	524	forward I	TM	Cytosolic
119	LG:236697.15:2001MAR30	525	547	forward 1	TM	Transmembrane
119	LG:236697.15:2001MAR30	548	566	forward 1	TM	Non-Cytosolic
119	LG:236697.15:2001MAR30	567	589	forward 1	TM	Transmembrane
119	LG:236697.15:2001MAR30	590	608	forward 1	TM	Cytosolic
119	LG:236697.15:2001MAR30	609	631	forward 1	TM	Transmembrane
119	LG:236697.15:2001MAR30	632	673	forward 1	TM	Non-Cytosolic
119	LG:236697.15:2001MAR30	1	80	forward 2	TM	Non-Cytosolic
119	LG:236697.15:2001MAR30	81	100	forward 2	TM	Transmembrane
119	LG:236697.15:2001MAR30	101	251	forward 2	TM	Cytosolic
119	LG:236697.15:2001MAR30	252	271	forward 2	TM	Transmembrane
119	LG:236697.15:2001MAR30	272	533	forward 2	TM	Non-Cytosolic
119	LG:236697.15:2001MAR30	534	556	forward 2	TM	Transmembrane
119	LG:236697.15:2001MAR30	557	568	forward 2	TM	Cytosolic
119	LG:236697.15:2001MAR30	569	586	forward 2	TM	Transmembrane
119	LG:236697.15:2001MAR30	587	600	forward 2	TM	Non-Cytosolic
119	LG:236697.15:2001MAR30	601	620	forward 2	TM	Transmembrane
119	LG:236697.15:2001MAR30	621	640	forward 2	· TM	· Cytosolic
119	LG:236697.15:2001MAR30	641	663	forward 2	TM	Transmembrane
119	LG:236697.15:2001MAR30	664	673	forward 2	TM	Non-Cytosolic
119	LG:236697.15:2001MAR30	1	454	forward 3	TM	Non-Cytosolic
119	LG:236697.15:2001MAR30	455	477	forward 3	TM	Transmembrane
119	LG:236697.15:2001MAR30	478	526	forward 3	TM	Cytosolic
119	LG:236697.15:2001MAR30	527	549	forward 3	TM	Transmembrane
119	LG:236697.15:2001MAR30	550	563	forward 3	TM	Non-Cytosolic
119	LG:236697.15:2001MAR30	564	583	forward 3	TM	Transmembrane
119	LG:236697.15:2001MAR30	584	605	forward 3	TM	Cytosolic
119	LG:236697.15:2001MAR30	606	628	forward 3	TM	Transmembrane
119	LG:236697.15:2001MAR30	629	672	forward 3	TM	Non-Cytosolic
120	LG:237503.21:2001MAR30	1	960	forward 1	TM	Non-Cytosolic
120	LG:237503.21:2001MAR30	961	983	forward 1	TM	Transmembrane
120	LG:237503.21:2001MAR30	984	989	forward 1	TM	Cytosolic
120	LG:237503.21:2001MAR30	990		forward 1	TM	Transmembrane
120	LG:237503.21:2001MAR30	1008	1072	forward 1	TM	Non-Cytosolic
120	LG:237503.21:2001MAR30	1073	1095	forward 1	TM	Transmembrane
120	LG:237503.21:2001MAR30	1096	1218	forward 1	TM	Cytosolic
120	LG:237503.21:2001MAR30	1	9	forward 2	TM	Non-Cytosolic
120	LG:237503.21:2001MAR30	10	32	forward 2	TM	Transmembrane
120	LG:237503.21:2001MAR30	33	44	forward 2	TM	Cytosolic
120	LG:237503.21:2001MAR30	45	64	forward 2	TM	Transmembrane
120	LG:237503.21:2001MAR30	65	926	forward 2	TM	Non-Cytosolic
120	LG:237503.21:2001MAR30	927	949	forward 2	TM	Transmembrane
120	LG:237503.21:2001MAR30	950	961	forward 2	TM	Cytosolic
120	LG:237503.21:2001MAR30	962	984	forward 2	TM	Transmembrane
120	LG:237503.21:2001MAR30	985	1218	forward 2	TM	Non-Cytosolic
120	LG:237503.21:2001MAR30	1	115	forward 3	TM	Non-Cytosolic
120	LG:237503.21:2001MAR30	116	138	forward 3	TM	Transmembrane
120	LG:237503.21:2001MAR30	139	144	forward 3	TM	Cytosolic

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
120	LG:237503.21:2001MAR30	145	167	forward 3	TM	Transmembrane
120	LG:237503.21:2001MAR30	168	232	forward 3	TM	Non-Cytosolic
120	LG:237503.21:2001MAR30	233	255	forward 3	TM	Transmembrane
120	LG:237503.21:2001MAR30	256	465	forward 3	TM	Cytosolic
120	LG:237503.21:2001MAR30	466	488	forward 3	TM	Transmembrane
120	LG:237503.21:2001MAR30	489	960	forward 3	TM	Non-Cytosolic
120	LG:237503.21:2001MAR30	961	983	forward 3	TM	Transmembrane
120	LG:237503.21:2001MAR30	984	989	forward 3	TM	Cytosolic
120	LG:237503.21:2001MAR30	990	1009	forward 3	TM	Transmembrane
120	LG:237503.21:2001MAR30	1010	1217	forward 3	TM	Non-Cytosolic
121	LG:238023.7:2001MAR30	1	753	forward 1	TM	Non-Cytosolic
121	LG:238023.7:2001MAR30	754	776	forward 1	TM	Transmembrane
121	LG:238023.7:2001MAR30	777	843	forward 1	TM	Cytosolic
121	LG:238023.7:2001MAR30	844	866	forward 1	TM	Transmembrane
121	LG:238023.7:2001MAR30	867	893	forward 1	TM	Non-Cytosolic
121	LG:238023.7:2001MAR30	1	19	forward 2	TM	Non-Cytosolic
121	LG:238023.7:2001MAR30	20	42	forward 2	TM	Transmembrane
121	LG:238023.7:2001MAR30	43	53	forward 2	TM	Cytosolic
121	LG:238023.7:2001MAR30	54	76	forward 2	TM	Transmembrane
121	LG:238023.7:2001MAR30	77	85	forward 2	TM	Non-Cytosolic
121	LG:238023.7:2001MAR30	86	108	forward 2	TM	Transmembrane
	<del></del>	109	128	forward 2	TM	Cytosolic
121	LG:238023.7:2001MAR30 LG:238023.7:2001MAR30	129	151	forward 2	TM	Transmembrane
121		152	597	forward 2	TM	Non-Cytosolic
121	LG:238023.7:2001MAR30	598	620	forward 2	TM	Transmembrane
121	LG:238023.7:2001MAR30	· 621		forward 2		Cytosolic
	LG:238023.7:2001MAR30		659	forward 2	TM ·	Transmembrane
121	LG:238023.7:2001MAR30	640 660	859	forward 2	TM	Non-Cytosolic
121	LG:238023.7:2001MAR30	860	882	forward 2	TM ·	Transmembrane
	LG:238023.7:2001MAR30 LG:238023.7:2001MAR30	883	893	forward 2	TM	Cytosolic
121		1	1179	forward 2	TM	Non-Cytosolic
122	LG:238209.1:2001MAR30	1180	1202	forward 2	TM	Transmembrane
122	LG:238209.1:2001MAR30	1203	1302	forward 2	TM	Cytosolic
122	LG:238209.1:2001MAR30		1111	forward 3	TM	Non-Cytosolic
122	LG:238209.1:2001MAR30	1	1134	forward 3	TM	Transmembrane
122	LG:238209.1:2001MAR30	1112	1154		TM	
122	LG:238209.1:2001MAR30	1135		forward 3		Cytosolic Transmembrane
122	LG:238209.1:2001MAR30	1155	1172	forward 3	· TM	
122	LG:238209.1:2001MAR30	1173	1186	forward 3	TM	Non-Cytosolic Transmembrane
122	LG:238209.1:2001MAR30	1187	1209	forward 3	TM	
122	LG:238209.1:2001MAR30	1210	1215	forward 3	TM	Cytosolic
122	LG:238209.1:2001MAR30	1216	1235	forward 3	TM	Transmembrane
122	LG:238209.1:2001MAR30	1236	1268	forward 3	TM	Non-Cytosolic
122	LG:238209.1:2001MAR30	1269	1291	forward 3	TM	Transmembrane
122	LG:238209.1:2001MAR30	1292	1302	forward 3	TM	Cytosolic
123	LG:238456.10:2001MAR30	1	6	forward 3	TM	Cytosolic
123	LG:238456.10:2001MAR30	7	29	forward 3	TM	Transmembrane
123	LG:238456.10:2001MAR30	30	431	forward,3	TM	Non-Cytosolic
124	LG:239245.1:2001MAR30	1	158	forward 1	TM	Cytosolic
124	LG:239245.1:2001MAR30	159	181	forward 1	TM	Transmembrane
124	LG:239245.1:2001MAR30	182	782	forward 1	TM	Non-Cytosolic
124	LG:239245.1:2001MAR30	783	805	forward 1	TM	Transmembrane
124	LG:239245.1:2001MAR30	806	842	forward 1	TM	Cytosolic
124	LG:239245.1:2001MAR30	1	162	forward 2	TM	Non-Cytosolic
124	LG:239245.1:2001MAR30	163	185	forward 2	·TM	Transmembrane
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		TABI	.E 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
124	LG:239245.1:2001MAR30	186	479	forward 2	TM	Cytosolic
124	LG:239245.1:2001MAR30	480	499	forward 2	TM	Transmembrane
124 .	LG:239245.1:2001MAR30	500	777	forward 2	TM	Non-Cytosolic
124	LG:239245.1:2001MAR30	778	800	forward 2	TM	Transmembrane
124	LG:239245.1:2001MAR30	801	842	forward 2	TM	Cytosolic
124	LG:239245.1:2001MAR30	1	159	forward 3	TM	Cytosolic
124	LG:239245.1:2001MAR30	160	182	forward 3	TM	Transmembrane
124	LG:239245.1:2001MAR30	183	475	forward 3	TM	Non-Cytosolic
124	LG:239245.1:2001MAR30	476	498	forward 3	TM	Transmembrane
124	LG:239245.1:2001MAR30	499	732	forward 3	TM	Cytosolic
124	LG:239245.1:2001MAR30	733	752	forward 3	TM	Transmembrane
124	LG:239245.1:2001MAR30	753	773	forward 3	TM	Non-Cytosolic
124	LG:239245.1:2001MAR30	774	796	forward 3	TM	Transmembrane
124	LG:239245.1:2001MAR30	797	842	forward 3	TM	Cytosolic
125	LG:239579.8:2001MAR30	1	45	forward 1	TM	Non-Cytosolic
125	LG:239579.8:2001MAR30	46	63	forward 1	TM	Transmembrane
125	LG:239579.8:2001MAR30	64	210	forward 1	TM	Cytosolic
125	LG:239579.8:2001MAR30	211	233	forward 1	TM	Transmembrane
125	LG:239579.8:2001MAR30	234	418	forward 1	TM	Non-Cytosolic
125	LG:239579.8:2001MAR30	419	441	forward 1	TM	Transmembrane
125	LG:239579.8:2001MAR30	442	469	forward 1	TM	Cytosolic
125	LG:239579.8:2001MAR30	1	224	forward 2	TM	Non-Cytosolic
125	LG:239579.8:2001MAR30	225	247	forward 2	TM	Transmembrane
125	LG:239579.8:2001MAR30	248	420	forward 2	TM	Cytosolic
. 125	LG:239579.8:2001MAR30	421	443	forward 2	TM ·	Transmembrane
125	LG:239579.8:2001MAR30	444	469	forward 2	TM	Non-Cytosolic
:125	LG:239579.8:2001MAR30	1	222	forward 3	TM	Non-Cytosolic
125	LG:239579.8:2001MAR30	223	245	forward 3	TM	Transmembrane
. 125	LG:239579.8:2001MAR30	246	264	forward 3	TM	Cytosolic .
125	LG:239579.8:2001MAR30	265	287	forward 3	TM	Transmembrane
125	LG:239579.8:2001MAR30	288	301	forward 3	TM	Non-Cytosolic
125	LG:239579.8:2001MAR30	302	324	forward 3	TM	Transmembrane
125	LG:239579.8:2001MAR30	325	418	forward 3	TM	Cytosolic
125	LG:239579.8:2001MAR30	419	441	forward 3	TM	Transmembrane
125	LG:239579.8:2001MAR30	442	468	forward 3	TM	Non-Cytosolic
126	LG:239601.22:2001MAR30	1	105	forward 1	TM	Cytosolic
126	LG:239601.22:2001MAR30	106	128	forward 1	TM	Transmembrane
126	LG:239601.22:2001MAR30	129	243	forward 1	TM	Non-Cytosolic
126	LG:239601.22:2001MAR30	244	266	forward 1	TM	Transmembrane
126	LG:239601.22:2001MAR30	267	314	forward 1	TM	Cytosolic
126	LG:239601.22:2001MAR30	315	337	forward 1	TM	Transmembrane
126	LG:239601.22:2001MAR30	338	346	forward 1	TM	Non-Cytosolic
126	LG:239601.22:2001MAR30	347	369	forward 1	TM	Transmembrane
126	LG:239601.22:2001MAR30	370	518	forward 1	TM	Cytosolic
126	LG:239601.22:2001MAR30	519	541	forward 1	TM	Transmembrane
126	LG:239601.22:2001MAR30	542	934	forward 1	TM	Non-Cytosolic
126	LG:239601.22:2001MAR30	1	114	forward 2	TM	Non-Cytosolic
126	LG:239601.22:2001MAR30	115	137	forward 2	TM	Transmembrane
126	LG:239601.22:2001MAR30	138	175	forward 2	TM	Cytosolic
126	LG:239601.22:2001MAR30	176	198	forward 2	TM	Transmembrane
126	LG:239601.22:2001MAR30	199	248	forward 2	TM	Non-Cytosolic
126	LG:239601.22:2001MAR30	249	271	forward 2	TM	Transmembrane
126	LG:239601.22:2001MAR30	272	291	forward 2	TM	Cytosolic
126	LG:239601.22:2001MAR30	292	314	forward 2	TM	Transmembrane
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		TABI				
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
126	LG:239601.22:2001MAR30	315	318	forward 2	TM	Non-Cytosolic
126	LG:239601.22:2001MAR30	319	341	forward 2	TM	Transmembrane
126	LG:239601.22:2001MAR30	342	352	forward 2	TM	Cytosolic
126	LG:239601.22:2001MAR30	353	375	forward 2	TM	Transmembrane
126	LG:239601.22:2001MAR30	376	933	forward 2	TM	Non-Cytosolic
126	LG:239601.22:2001MAR30	1	25	forward 3	TM	Non-Cytosolic
126	LG:239601.22:2001MAR30	26	45	forward 3	TM	Transmembrane
126	LG:239601.22:2001MAR30	46	109	forward 3	TM	Cytosolic
126	LG:239601.22:2001MAR30	110	129	forward 3	TM	Transmembrane
126	LG:239601.22:2001MAR30	130	182	forward 3	TM	Non-Cytosolic
126	LG:239601.22:2001MAR30	183	205	forward 3	TM	Transmembrane
126	LG:239601.22:2001MAR30	206	231	forward 3	TM	Cytosolic
126	LG:239601.22:2001MAR30	232	254	forward 3	TM	Transmembrane
126	LG:239601.22:2001MAR30	255	268	forward 3	TM	Non-Cytosolic
126	LG:239601.22:2001MAR30	269	291	forward 3	TM	Transmembrane
126	LG:239601.22:2001MAR30	292	303	forward 3	TM	Cytosolic
126	LG:239601.22:2001MAR30	304	326	forward 3	TM	Transmembrane
126	LG:239601.22:2001MAR30	327	933	forward 3	TM	Non-Cytosolic
127	LG:240121.1:2001MAR30	1	409	forward 1	TM	Non-Cytosolic
127	LG:240121.1:2001MAR30	410	432	forward 1	TM	Transmembrane
127	LG:240121.1:2001MAR30	433	723	forward 1	TM	Cytosolic
127	LG:240121.1:2001MAR30	724	742	forward 1	TM	Transmembrane
127	LG:240121.1:2001MAR30	743	756	forward 1	TM	Non-Cytosolic
	LG:240121.1:2001MAR30	757	774	forward 1	TM	Transmembrane
127	LG:240121.1:2001MAR30	775	793	forward 1	TM	Cytosolic
127	LG:240121.1:2001MAR30	794	816	forward 1	TM	Transmembrane
127	LG:240121.1:2001MAR30	817	.820	forward 1	TM	Non-Cytosolic
127		821	843	forward 1	TM	Transmembrane
127	LG:240121.1:2001MAR30	844	898	forward 1	TM	Cytosolic
127	LG:240121.1:2001MAR30	1	409	forward 2	TM	Non-Cytosolic
127	LG:240121.1:2001MAR30	410	432	forward 2	TM	Transmembrane
127	LG:240121.1:2001MAR30	433	729	forward 2	TM	Cytosolic
127	LG:240121.1:2001MAR30	730	747	forward 2	TM	Transmembrane
127	LG:240121.1:2001MAR30	748	756	forward 2	TM	Non-Cytosolic
127	LG:240121.1:2001MAR30	757	774	forward 2	TM	Transmembrane
127	LG:240121.1:2001MAR30	775	785	forward 2	TM	Cytosolic
127	LG:240121.1:2001MAR30	786	808	forward 2	TM	Transmembrane
127	LG:240121.1:2001MAR30	809	827	forward 2	TM	Non-Cytosolic
127	LG:240121.1:2001MAR30	828	850	forward 2	TM	Transmembrane
127	LG:240121.1:2001MAR30	851	898	forward 2	TM	Cytosolic
127	LG:240121.1:2001MAR30	1	405	forward 3	TM	Non-Cytosolic
127	LG:240121.1:2001MAR30	406	428	forward 3	TM	Transmembrane
127	LG:240121.1:2001MAR30	429	785	forward 3	TM	Cytosolic
127		786	808	forward 3	TM	Transmembrane
	LG:240121.1:2001MAR30	809	827	forward 3	TM	Non-Cytosolic
127	LG:240121.1:2001MAR30					Transmembrane
127	LG:240121.1:2001MAR30	828 851	850 897	forward 3 forward 3	TM TM	Cytosolic
127	LG:240121.1:2001MAR30		1348	forward 2	TM	Non-Cytosolic
128	LG:241110.2:2001MAR30	<b>i</b> 1349				Transmembrane
128	LG:241110.2:2001MAR30		1371	forward 2	TM	Cytosolic
128	LG:241110.2:2001MAR30	1372	1377	forward 2	TM	Transmembrane
128	LG:241110.2:2001MAR30	1378	1400	forward 2	TM	Non-Cytosolic
128	LG:241110.2:2001MAR30	1401	2121	forward 2	TM	Cytosolic
129	LG:244948.4:2001MAR30	] 210	309	forward 1	TM .	Transmembrane
129	LG:244948.4:2001MAR30	310	332	forward 1	TM	r ransmemorane
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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
129	LG:244948.4:2001MAR30	333	336	forward 1	TM	Non-Cytosolic
130	LG:245378.6:2001MAR30	1	294	forward 1	TM	Cytosolic
130	LG:245378.6:2001MAR30	295	312	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	313	321	forward 1	TM	Non-Cytosolic
130	LG:245378.6:2001MAR30	322	344	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	345	390	forward 1	TM	Cytosolic
130	LG:245378.6:2001MAR30	391	413	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	414	464	forward 1	TM	Non-Cytosolic
130	LG:245378.6:2001MAR30	465	487	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	488	574	forward 1	TM	Cytosolic
130	LG:245378.6:2001MAR30	575	597	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	598	606	forward 1	TM	Non-Cytosolic
130	LG:245378.6:2001MAR30	607	629	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	630	805	forward 1	TM	Cytosolic
130	LG:245378.6:2001MAR30	806	828	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	829	842	forward 1	TM	Non-Cytosolic
130	LG:245378.6:2001MAR30	843	862	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	863	886	forward 1	TM	Cytosolic
130	LG:245378.6:2001MAR30	887	909	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	910	955	forward 1	TM	Non-Cytosolic
130	LG:245378.6:2001MAR30	956	978	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	979	989	forward 1	TM	Cytosolic
130	LG:245378.6:2001MAR30	990	1009	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	1010	1013	forward 1	TM	Non-Cytosolic
130	LG:245378.6:2001MAR30	1014	1036	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	. 1037	1070	forward 1	TM	Cytosolic
130	LG:245378.6:2001MAR30	1071		forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	1091	1179	forward 1	TM	Non-Cytosolic
130	LG:245378.6:2001MAR30	1180	1202	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	1203	1347	forward 1	TM	Cytosolic
130	LG:245378.6:2001MAR30	1348	1370	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	1371	1412	forward 1	TM	Non-Cytosolic
130	LG:245378.6:2001MAR30	1413	1430	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	1431	1509	forward 1	TM	Cytosolic
130	LG:245378.6:2001MAR30	1510	1532	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	1533	1583	forward 1	TM	Non-Cytosolic
130	LG:245378.6:2001MAR30	1584	1606	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	1607	1683	forward 1	TM	Cytosolic
130	LG:245378.6:2001MAR30	1684	1706	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	1707	1725	forward 1	TM	Non-Cytosolic
130	LG:245378.6:2001MAR30	1726	1748	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	1749	1760	forward 1	TM	Cytosolic
130	LG:245378.6:2001MAR30	1761	1783	forward 1	TM	Transmembrane
130	LG:245378.6:2001MAR30	1784	1796	forward 1	TM	Non-Cytosolic
130	LG:245378.6:2001MAR30	1764	389	forward 2	TM	Non-Cytosolic
130	LG:245378.6:2001MAR30	390	412	forward 2	TM	Transmembrane
	LG:245378.6:2001MAR30	413	473			Cytosolic
130 130	LG:245378.6:2001MAR30	413 474	473	forward 2 forward 2	ŢM TM	Transmembrane
		494	597	forward 2		Non-Cytosolic
130 130	LG:245378.6:2001MAR30	598	620	forward 2	TM	Transmembrane
	LG:245378.6:2001MAR30				TM	
130	LG:245378.6:2001MAR30	621 601	690	forward 2	TM	Cytosolic
130	LG:245378.6:2001MAR30	691	713	forward 2	TM	Transmembrane
130	LG:245378.6:2001MAR30	714	839	forward 2	TM	Non-Cytosolic
130	LG:245378.6:2001MAR30	840	862	forward 2	TM	Transmembrane

## TABLE 2 Domain Type Topology Stop Frame Start SEQ D NO: Template ID Cytosolic 874 forward 2 TM 130 LG:245378.6:2001MAR30 863 Transmembrane 875 897 forward 2 TM 130 LG:245378.6:2001MAR30 TM Non-Cytosolic 898 916 forward 2 130 LG:245378.6:2001MAR30 939 forward 2 TM Transmembrane 917 130 LG:245378.6:2001MAR30 TM Cytosolic LG:245378.6:2001MAR30 940 958 forward 2 130 Transmembrane 130 LG:245378.6:2001MAR30 959 981 forward 2 TM 982 1086 forward 2 TM Non-Cytosolic LG:245378.6:2001MAR30 130 1087 1109 forward 2 TM Transmembrane LG:245378.6:2001MAR30 130 1110 1257 forward 2 TM Cytosolic 130 LG:245378.6:2001MAR30 LG:245378.6:2001MAR30 1258 1280 forward 2 TM Transmembrane 130 LG:245378.6:2001MAR30 1281 1440 forward 2 TM Non-Cytosolic 130 1441 1463 forward 2 TM Transmembrane LG:245378.6:2001MAR30 130 forward 2 TM 1464 1483 Cytosolic 130 LG:245378.6:2001MAR30 Transmembrane LG:245378.6:2001MAR30 1484 1506 forward 2 TM 130 Non-Cytosolic LG:245378.6:2001MAR30 1507 1580 forward 2 TM 130 forward 2 TM Transmembrane LG:245378.6:2001MAR30 1581 1598 130 1641 forward 2 TM Cytosolic LG:245378.6:2001MAR30 1599 130 TM Transmembrane 1642 1664 forward 2 130 LG:245378.6:2001MAR30 Non-Cytosolic 1683 forward 2 TM 130 LG:245378.6:2001MAR30 1665 1684 1706 forward 2 TM Transmembrane 130 LG:245378.6:2001MAR30 forward 2 TM Cytosolic LG:245378.6:2001MAR30 1707 1722 130 Transmembrane 1723 1745 forward 2 TM 130 LG:245378.6:2001MAR30 1754 forward 2 TM Non-Cytosolic 1746 130 LG:245378.6:2001MAR30 Transmembrane 1777 TM ..1755 forward 2 130 LG:245378.6:2001MAR30 TM Cytosolic LG:245378.6:2001MAR30 1778 1796 forward 2 130 Non-Cytosolic 78 forward 3 TM 130 LG:245378.6:2001MAR30 1 79 101 TM Transmembrane LG:245378.6:2001MAR30 forward 3 130 102 392 forward 3 TM Cytosolic 130 LG:245378.6:2001MAR30 393 415 forward 3 TM Transmembrane 130 LG:245378.6:2001MAR30 Non-Cytosolic 416 468 forward 3 TM 130 LG:245378.6:2001MAR30 Transmembrane LG:245378.6:2001MAR30 469 486 forward 3 TM 130 Cytosolic 130 LG:245378.6:2001MAR30 487 569 forward 3 TM 570 592 forward 3 TM Transmembrane 130 LG:245378.6:2001MAR30 Non-Cytosolic 593 615 forward 3 TM 130 LG:245378.6:2001MAR30 638 forward 3 TM Transmembrane 616 130 LG:245378.6:2001MAR30 Cytosolic 691 forward 3 TM 639 130 LG:245378.6:2001MAR30 Transmembrane 692 714 forward 3 TM 130 LG:245378.6:2001MAR30 Non-Cytosolic 715 728 forward 3 TM 130 LG:245378.6:2001MAR30 729 748 forward 3 TM Transmembrane 130 LG:245378.6:2001MAR30 772 Cytosolic 749 forward 3 TM 130 LG:245378.6:2001MAR30 773 795 TM Transmembrane forward 3 130 LG:245378.6:2001MAR30. 796 914 TM Non-Cytosolic forward 3 130 LG:245378.6:2001MAR30 937 Transmembrane 915 forward 3 TM 130 LG:245378.6:2001MAR30 LG:245378.6:2001MAR30 938 957 forward 3 TM Cytosolic 130 958 980 forward 3 TM Transmembrane 130 LG:245378.6:2001MAR30 981 1021 forward 3 TM Non-Cytosolic 130 LG:245378.6:2001MAR30 1022 1044 forward 3 TM Transmembrane 130 LG:245378.6:2001MAR30 1045 1064 forward 3 TM Cytosolic 130 LG:245378.6:2001MAR30 130 1065 1087 forward 3 TM Transmembrane LG:245378.6:2001MAR30 1096 Non-Cytosolic 1088 forward 3 TM 130 LG:245378.6:2001MAR30 1097 1114 forward 3 TM Transmembrane 130 LG:245378.6:2001MAR30 Cytosolic 1115 1143 130 LG:245378.6:2001MAR30 forward 3 TM 1144 1166 forward 3 Transmembrane 130 LG:245378.6:2001MAR30 TM 1167 1185 forward 3 TM Non-Cytosolic

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LG:245378.6:2001MAR30

		TABI	F 2			
CEO D NO	. Tamplata ID	Start		Frame	Domain Type	Topology
SEQ D NO		1186	Stop 1208		TM	Topology Transmembrane
130 130	LG:245378.6:2001MAR30 LG:245378.6:2001MAR30	1209	1368	forward 3 forward 3	TM	Cytosolic
130	LG:245378.6:2001MAR30	1369	1391	forward 3	TM	Transmembrane
130	LG:245378.6:2001MAR30	1392	1405	forward 3	TM	Non-Cytosolic
130	LG:245378.6:2001MAR30 LG:245378.6:2001MAR30	1406	1403	forward 3	TM	Transmembrane
130	LG:245378.6:2001MAR30	1429	1440	forward 3	TM	Cytosolic
130	LG:245378.6:2001MAR30	1441	1463	forward 3	TM	Transmembrane
130	LG:245378.6:2001MAR30	1464	1477	forward 3	TM	Non-Cytosolic
130	LG:245378.6:2001MAR30	1478	1500	forward 3	TM	Transmembrane
130	LG:245378.6:2001MAR30	1501	1512	forward 3	TM	Cytosolic
130	LG:245378.6:2001MAR30	1513	1532	forward 3	TM	Transmembrane
130	LG:245378.6:2001MAR30	1533		forward 3	TM	Non-Cytosolic
130	LG:245378.6:2001MAR30	1573	1590	forward 3	TM	Transmembrane
130	LG:245378.6:2001MAR30	1591	1752		TM	Cytosolic
130	LG:245378.6:2001MAR30	1753	1775	forward 3	TM	Transmembrane
130	LG:245378.6:2001MAR30	1776	1795	forward 3	TM	Non-Cytosolic
131	LG:248203.9:2001MAR30	1	197	forward 2	TM	Non-Cytosolic
131	LG:248203.9:2001MAR30	198	220	forward 2	TM	Transmembrane
131	LG:248203.9:2001MAR30	221	240	forward 2	TM	Cytosolic
131	LG:248203.9:2001MAR30	241	263	forward 2	TM	Transmembrane
131	LG:248203.9:2001MAR30	264	656	forward 2	TM	Non-Cytosolic
131	LG:248203.9:2001MAR30	1	242	forward 3	TM	Non-Cytosolic
131	LG:248203.9:2001MAR30	243	265	forward 3	TM	Transmembrane
131	LG:248203.9:2001MAR30 · .	266	. 280	forward 3	TM	Cytosolic
131	LG:248203.9:2001MAR30	281	303	forward 3	TM	Transmembrane
131	LG:248203.9:2001MAR30	304	656	forward 3	TM	Non-Cytosolic
132	LG:249247.1:2001MAR30	1. 1.9	489	forward 1	TM	Non-Cytosolic
132	LG:249247.1:2001MAR30	490	:512	forward 1	TM	Transmembrane
132	LG:249247.1:2001MAR30	513	579	forward 1	TM	Cytosolic
132	LG:249247.1:2001MAR30	580	602	forward 1	TM	Transmembrane
132	LG:249247.1:2001MAR30	603	769	forward 1	TM	Non-Cytosolic
132	LG:249247.1:2001MAR30	1	480	forward 3	TM	Non-Cytosolic
132	LG:249247.1:2001MAR30	481	503	forward 3	TM	Transmembrane
132	LG:249247.1:2001MAR30	504	532	forward 3	TM	Cytosolic
132	LG:249247.1:2001MAR30	533	555	forward 3	TM	Transmembrane
132	LG:249247.1:2001MAR30	556	768	forward 3	TM	Non-Cytosolic
133	LG:267153.16:2001MAR30	1	1106	forward 3	TM	Non-Cytosolic
133	LG:267153.16:2001MAR30	1107	1129	forward 3	TM	Transmembrane
133	LG:267153.16:2001MAR30	1130	1135	forward 3	TM	Cytosolic
133	LG:267153.16:2001MAR30	1136	1158	forward 3	TM	Transmembrane
133	LG:267153.16:2001MAR30	1159	1190	forward 3	TM	Non-Cytosolic
134	LG:291759.5:2001MAR30	1	16	forward 2	TM	Cytosolic
134	LG:291759.5:2001MAR30	17	39	forward 2	TM	Transmembrane
134	LG:291759.5:2001MAR30	40	406	forward 2	TM	Non-Cytosolic
134	LG:291759.5:2001MAR30	1	4	forward 3	TM	Cytosolic
134	LG:291759.5:2001MAR30	5	34	forward 3	TM	Transmembrane
134	LG:291759.5:2001MAR30	35	405	forward 3	TM	Non-Cytosolic
135	LG:298102.1:2001MAR30	1	52	forward 2	TM	Cytosolic
135	LG:298102.1:2001MAR30	53	70	forward 2	TM	Transmembrane
135	LG:298102.1:2001MAR30	71	276	forward 2	TM	Non-Cytosolic
135	LG:298102.1:2001MAR30	1	9	forward 3	TM	Non-Cytosolic
135	LG:298102.1:2001MAR30	10	28	forward 3	TM	Transmembrane
135	LG:298102.1:2001MAR30	29	40	forward 3	TM	Cytosolic
135	LG:298102.1:2001MAR30	41	63	forward 3	TM	Transmembrane
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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
135	LG:298102.1:2001MAR30	64	276	forward 3	TM	Non-Cytosolic
136	LG:308891.1:2001MAR30	1	14	forward 2	TM	Non-Cytosolic
136	LG:308891.1:2001MAR30	15	37	forward 2	TM	Transmembrane
136	LG:308891.1:2001MAR30	38	191	forward 2	TM	Cytosolic
136	LG:308891.1:2001MAR30	192	214	forward 2	TM	Transmembrane
136	LG:308891.1:2001MAR30	215	219	forward 2	TM	Non-Cytosolic
137	LG:312668.4:2001MAR30	1	270	forward 3	TM	Non-Cytosolic
137	LG:312668.4:2001MAR30	271	293	forward 3	TM	Transmembrane
137	LG:312668.4:2001MAR30	294	408	forward 3	TM	Cytosolic
137	LG:312668.4:2001MAR30	409	431	forward 3	TM	Transmembrane
137	LG:312668.4:2001MAR30	432	625	forward 3	TM	Non-Cytosolic
138	LG:331642.6:2001MAR30	1	19	forward 1	TM	Cytosolic
138	LG:331642.6:2001MAR30	20	42	forward 1	TM	Transmembrane
138	LG:331642.6:2001MAR30	43	630	forward 1	TM	Non-Cytosolic
138	LG:331642.6:2001MAR30	1	12	forward 3	TM	Cytosolic
138	LG:331642.6:2001MAR30	13	35	forward 3	TM	Transmembrane
138	LG:331642.6:2001MAR30	36·	65	forward 3	TM	Non-Cytosolic
138	LG:331642.6:2001MAR30	66	85	forward 3	TM	Transmembrane
138	LG:331642.6:2001MAR30	86	266	forward 3	TM	Cytosolic
138	LG:331642.6:2001MAR30	267	289	forward 3	TM	Transmembrane
138	LG:331642.6:2001MAR30	290	629	forward 3	TM	Non-Cytosolic
139	LG:331851.12:2001MAR30	1	904	forward 2	TM	Non-Cytosolic
139	LG:331851.12:2001MAR30	905	927	forward 2	TM	Transmembrane
139	LG:331851.12:2001MAR30	928	946	forward 2	TM	Cytosolic
139	LG:331851.12:2001MAR30	947	969	forward 2	TM	Transmembrane
139	LG:331851.12:2001MAR30	970		forward 2	TM	Non-Cytosolic
139	LG:331851.12:2001MAR30	2184	2206		TM	Transmembrane
139	LG:331851.12:2001MAR30	2207	2218	forward 2		Cytosolic
139	LG:331851.12:2001MAR30		833	forward 3	TM	Non-Cytosolic
139	LG:331851.12:2001MAR30	834	856	forward 3	TM	Transmembrane
139	LG:331851.12:2001MAR30	857	875	forward 3	TM	Cytosolic
139	LG:331851.12:2001MAR30	876	898	forward 3	TM	Transmembrane
139	LG:331851.12:2001MAR30	899	902	forward 3	TM	Non-Cytosolic
139	LG:331851.12:2001MAR30	903	925	forward 3	TM	Transmembrane
139	LG:331851.12:2001MAR30	926	992	forward 3	TM	Cytosolic
139	LG:331851.12:2001MAR30	993	1015	forward 3	TM	Transmembrane
139	LG:331851.12:2001MAR30	1016	2217	forward 3	TM	Non-Cytosolic
140	LG:332414.5:2001MAR30	1	482	forward 2	TM	Non-Cytosolic
140	LG:332414.5:2001MAR30	483	505	forward 2	TM	Transmembrane
	LG:332414.5:2001MAR30 LG:332414.5:2001MAR30	506	521	forward 2	TM	Cytosolic
140 140	LG:332414.5:2001MAR30 LG:332414.5:2001MAR30	1	111	forward 3	TM	Non-Cytosolic
	LG:332414.5:2001MAR30	112	134	forward 3	TM	Transmembrane
140	LG:332414.5:2001MAR30 LG:332414.5:2001MAR30	135	218	forward 3	TM	Cytosolic
140	LG:332414.5:2001MAR30 LG:332414.5:2001MAR30	219	236	forward 3	TM	Transmembrane
140		237	250	forward 3	TM	Non-Cytosolic
140	LG:332414.5:2001MAR30	251	273	forward 3	TM	Transmembrane
140	LG:332414.5:2001MAR30	274	480	forward 3	TM	Cytosolic
140	LG:332414.5:2001MAR30	481	503	forward 3	TM	Transmembrane
140	LG:332414.5:2001MAR30					Non-Cytosolic
140	LG:332414.5:2001MAR30	504	521	forward 1	TM	Non-Cytosolic
141	LG:332730.12;2001MAR30	1 517	516	forward 1	TM TM	•
141	LG:332730.12:2001MAR30	517	539	forward 1	TM	Transmembrane
141	LG:332730.12:2001MAR30	540	684	forward 1	TM	Cytosolic Transmembrane
141	LG:332730.12:2001MAR30	685	707	forward 1	TM	
141	LG:332730.12:2001MAR30	708	710	forward 1	·TM	Non-Cytosolic

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		TABI		_	D'- W	m 1
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
141	LG:332730.12:2001MAR30	711	733	forward 1	TM	Transmembrane
141	LG:332730.12:2001MAR30	734	739	forward 1	TM	Cytosolic
141	LG:332730.12:2001MAR30	740	762	forward 1	TM	Transmembrane
141	LG:332730.12:2001MAR30	763	781	forward 1	TM	Non-Cytosolic
141	LG:332730.12:2001MAR30	782	804	forward 1	· TM	Tránsmembrane
141	LG:332730.12:2001MAR30	805	1011	forward 1	TM	Cytosolic
141	LG:332730.12:2001MAR30	1012	1034	forward 1	TM	Transmembrane
141	LG:332730.12:2001MAR30	1035	1043	forward 1	TM	Non-Cytosolic
141	LG:332730.12:2001MAR30	1044	1063	forward 1	TM	Transmembrane
141	LG:332730.12:2001MAR30	1064	1083	forward 1	TM	Cytosolic
141	LG:332730.12:2001MAR30	1084	1106	forward 1	TM	Transmembrane
141	LG:332730.12:2001MAR30	1107	1302	forward 1	TM	Non-Cytosolic
141	LG:332730.12:2001MAR30	1	526	forward 2	TM	Non-Cytosolic
141	LG:332730.12:2001MAR30	527	549	forward 2	TM	Transmembrane
141	LG:332730.12:2001MAR30	550	739	forward 2	TM	Cytosolic
141	LG:332730.12:2001MAR30	740	762	forward 2	TM	Transmembrane
141	LG:332730.12:2001MAR30	763	781	forward 2	TM	Non-Cytosolic
141	LG:332730.12:2001MAR30	782	804	forward 2	TM	Transmembrane
141	LG:332730.12:2001MAR30	805	891	forward 2	TM	Cytosolic
141	LG:332730.12:2001MAR30	892	914	forward 2	TM	Transmembrane
141	LG:332730.12:2001MAR30	915	946	forward 2	TM	Non-Cytosolic
141	LG:332730.12:2001MAR30	947	969	forward 2	TM	Transmembrane
141	LG:332730.12:2001MAR30	970	1001	forward 2	TM	Cytosolic
. 141	LG:332730.12:2001MAR30	1002		forward 2	TM	Transmembrane
141	LG:332730.12:2001MAR30	1025		forward 2	TM	Non-Cytosolic
141	LG:332730.12:2001MAR30	1029	1048-	forward 2	TM	Transmembrane
141	LG:332730.12:2001MAR30	1049	1079	forward-2	TM	Cytosolic
141	LG:332730.12:2001MAR30	1080	1102	forward 2	TM	Transmembrane
· 141	LG:332730.12:2001MAR30	1103	1301	forward 2	TM	Non-Cytosolic
141	LG:332730.12:2001MAR30	1	514	forward 3	TM	Non-Cytosolic
141	LG:332730.12:2001MAR30	515	537	forward 3	TM	Transmembrane
141	LG:332730.12:2001MAR30	538	738	forward 3	TM	Cytosolic
141	LG:332730.12:2001MAR30	739	761	forward 3	TM	Transmembrane
141	LG:332730.12:2001MAR30	762	780	forward 3	TM	Non-Cytosolic
141 -	LG:332730.12:2001MAR30	781	803	forward 3	TM	Transmembrane
141	LG:332730.12:2001MAR30	804	1094	forward 3	TM	Cytosolic
141	LG:332730.12:2001MAR30	1095	1117	forward 3	TM	Transmembrane
141	LG:332730.12:2001MAR30	1118	1181	forward 3	TM	Non-Cytosolic
141	LG:332730.12:2001MAR30	1182	1201	forward 3	TM	Transmembrane
141	LG:332730.12:2001MAR30	1202	1212	forward 3	TM	Cytosolic
· 141	LG:332730.12:2001MAR30	1213	1235	forward 3	TM	Transmembrane
141	LG:332730.12:2001MAR30	1236	1269	forward 3	TM	Non-Cytosolic
141	LG:332730.12:2001MAR30	1270	1287	forward 3	TM	Transmembrane
141	LG:332730.12:2001MAR30	1288	1301	forward 3	TM	Cytosolic
142	LG:333062.22:2001MAR30	i	14	forward 1	TM	Non-Cytosolic
142	LG:333062.22:2001MAR30	15	37	forward 1	TM	Transmembrane
142	LG:333062.22:2001MAR30	38	133	forward 1	TM	Cytosolic
142	LG:333062.22:2001MAR30	134	151	forward 1	TM	Transmembrane
142	LG:333062.22:2001MAR30	152	160	forward 1	TM	Non-Cytosolic
142	LG:333062.22:2001MAR30	161	180	forward 1	TM	Transmembrane
142	LG:333062.22:2001MAR30	181	229	forward 1	TM	Cytosolic
142	LG:333062.22:2001MAR30	1	100	forward 2	TM	Non-Cytosolic
142	LG:333062.22:2001MAR30	101	120	forward 2	TM	Transmembrane
142	LG:333062.22:2001MAR30	121	204	forward 2	TM	Cytosolic
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		TABI	.E 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
142	LG:333062.22:2001MAR30	205	227	forward 2	TM	Transmembrane
142	LG:333062.22:2001MAR30	228	229	forward 2	TM	Non-Cytosolic
143	LG:335705.2:2001MAR30	1	1114	forward 1	TM	Non-Cytosolic
143	LG:335705.2:2001MAR30	1115	1137	forward 1	TM	Transmembrane
143	LG:335705.2:2001MAR30	1138	1233	forward 1	TM	Cytosolic
143	LG:335705.2:2001MAR30	1234	1256	forward 1	TM	Transmembrane
143	LG:335705.2:2001MAR30	1257	1747	forward 1	TM	Non-Cytosolic
143	LG:335705.2:2001MAR30	1748	1770	forward 1	TM	Transmembrane
143	LG:335705.2:2001MAR30	1771	1790	forward 1	TM	Cytosolic
143	LG:335705.2:2001MAR30	1	1249	forward 2	TM	Non-Cytosolic
143	LG:335705.2:2001MAR30	1250	1272	forward 2	TM	Transmembrane
143	LG:335705.2:2001MAR30	1273	1283	forward 2	TM	Cytosolic
143	LG:335705.2:2001MAR30	1284	1306	forward 2	TM	Transmembrane
143	LG:335705.2:2001MAR30	1307	1315	forward 2	TM	Non-Cytosolic
143	LG:335705.2:2001MAR30	1316	1338	forward 2	TM	Transmembrane
143	LG:335705.2:2001MAR30	1339	1496	forward 2	TM	Cytosolic
143	LG:335705.2:2001MAR30	1497	1514	forward 2	TM	Transmembrane
143	LG:335705.2:2001MAR30	1515	1730	forward 2	TM	Non-Cytosolic
143	LG:335705.2:2001MAR30	1731	1753	forward 2	TM	Transmembrane
143	LG:335705.2:2001MAR30	1754	1790	forward 2	TM	Cytosolic
143	LG:335705.2:2001MAR30	1	1248	forward 3	TM	Non-Cytosolic
143	LG:335705.2:2001MAR30	1249	1271	forward 3	· TM	Transmembrane
143	LG:335705.2:2001MAR30	1272	1283	forward 3	TM	Cytosolic
143	LG:335705.2:2001MAR30	1284	1306	forward 3	TM	Transmembrane
143	LG:335705.2:2001MAR30	1307	1315	forward 3	TM	Non-Cytosolic
143	LG:335705.2:2001MAR30	1316	1335	forward 3	TM	Transmembrane
143	LG:335705.2:2001MAR30	1336	1346	forward 3	TM	Cytosolic
143	LG:335705.2:2001MAR30	1347	1366	forward 3	TM	Transmembrane
143	LG:335705.2:2001MAR30	1367		forward 3	: TM ·	Non-Cytosolic
144	LG:337930.16:2001MAR30	1	12	forward 2	TM	Cytosolic
144	LG:337930.16:2001MAR30	13	35	forward 2	TM	Transmembrane
144	LG:337930.16:2001MAR30	36	645	forward 2	TM	Non-Cytosolic
145	LG:346481.15:2001MAR30	1	106	forward 2	TM	Non-Cytosolic
. 145	LG:346481.15:2001MAR30	107	129	forward 2	TM	Transmembrane
145	LG:346481.15:2001MAR30	130	161	forward 2	TM	Cytosolic
146	LG:349164.1:2001MAR30	1	48	forward 1	TM	Cytosolic
146	LG:349164.1:2001MAR30	49	67	forward 1	TM	Transmembrane
146	LG:349164.1:2001MAR30	68	76	forward 1	TM	Non-Cytosolic
146	LG:349164.1:2001MAR30	77	99	forward 1	TM	Transmembrane
146	LG:349164.1:2001MAR30	100	123	forward 1	TM	Cytosolic
146	LG:349164.1:2001MAR30	124	146	forward 1	TM	Transmembrane
146	LG:349164.1:2001MAR30	147	738	forward 1	TM	Non-Cytosolic
146	LG:349164.1:2001MAR30	739	761	forward 1	TM	Transmembrane
146	LG:349164.1:2001MAR30	762	807	forward 1	TM	Cytosolic
146	LG:349164.1:2001MAR30	808	830	forward 1	TM	Transmembrane
146	LG:349164.1:2001MAR30	831	844	forward 1	TM	Non-Cytosolic
146	LG:349164.1:2001MAR30	845	867	forward 1	TM	Transmembrane
146	LG:349164.1:2001MAR30	868	943	forward 1	TM	Cytosolic
146	LG:349164.1:2001MAR30	944	966	forward 1	TM	Transmembrane
146	LG:349164.1:2001MAR30	967	973	forward 1	TM	Non-Cytosolic
146	LG:349164.1:2001MAR30	1	45	forward 2		Cytosolic
146	LG:349164.1:2001MAR30	46	68	forward 2		Transmembrane
146	LG:349164.1:2001MAR30	69	124	forward 2		Non-Cytosolic
146	LG:349164.1:2001MAR30	125	144	forward 2		Transmembrane
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		TABI	.E.2			
SEO D NO.	Template ID	Start	Stop	Frame	Domain Type	Topology
SEQ D NO: 146	LG:349164.1:2001MAR30	145	150	forward 2	TM	Cytosolic
146	LG:349164.1:2001MAR30	151	173	forward 2	TM	Transmembrane
146	LG:349164.1:2001MAR30	174	187	forward 2	TM	Non-Cytosolic
146	LG:349164.1:2001MAR30	188	210	forward 2	TM	Transmembrane
146	LG:349164.1:2001MAR30	211	389	forward 2	TM	Cytosolic
146	LG:349164.1:2001MAR30	390	408	forward 2	TM	Transmembrane
146	LG:349164.1:2001MAR30	409	422	forward 2	TM	Non-Cytosolic
146	LG:349164.1:2001MAR30	423	442	forward 2	TM	Transmembrane
146	LG:349164.1:2001MAR30	443	478	forward 2	TM	Cytosolic
146	LG:349164.1:2001MAR30	479	496	forward 2	TM	Transmembrane
146	LG:349164.1:2001MAR30	497	660	forward 2	TM	Non-Cytosolic
146	LG:349164.1:2001MAR30	661	683	forward 2	TM	Transmembrane
146	LG:349164.1:2001MAR30	684	695	forward 2	TM	Cytosolic
146	LG:349164.1:2001MAR30	696	715	forward 2	TM	Transmembrane
146	LG:349164.1:2001MAR30	716	734	forward 2	TM	Non-Cytosolic
146	LG:349164.1:2001MAR30	735	757	forward 2	TM	Transmembrane
146	LG:349164.1:2001MAR30	758	776	forward 2	TM	Cytosolic
146	LG:349164.1:2001MAR30	777	799	forward 2	TM	Transmembrane
146	LG:349164.1:2001MAR30	800	824	forward 2	TM	Non-Cytosolic
146	LG:349164.1:2001MAR30	825	847	forward 2	TM	Transmembrane
146	LG:349164.1:2001MAR30	848	853	forward 2	TM	Cytosolic
146	LG:349164.1:2001MAR30	854	873	forward 2	TM	Transmembrane
146	LG:349164.1:2001MAR30	874	876	forward 2	TM	Non-Cytosolic
146	LG:349164.1:2001MAR30	877	899	forward 2	TM	· Transmembrane
146	LG:349164.1:2001MAR30	900	932	forward 2	TM	Cytosolic
146	LG:349164.1:2001MAR30	. 933	955.	forward 2	TM	Transmembrane :
146	LG:349164.1:2001MAR30	956	973	forward 2	TM	Non-Cytosolic
-146	LG:349164:1:2001MAR30	· 1 1	663	forward 3	TM	Non-Cytosolic
- 146	LG:349164.1:2001MAR30	664	681	forward 3	TM	Transmembrane
146	LG:349164.1:2001MAR30	682	692	forward 3	TM	Cytosolic
146	LG:349164.1:2001MAR30	693	715	forward 3	TM	Transmembrane
. 146	LG:349164.1:2001MAR30	716	741	forward 3	TM	Non-Cytosolic
146	LG:349164.1:2001MAR30	742	764	forward 3	TM	Transmembrane
, 146	LG:349164.1:2001MAR30	765	776	forward 3	TM	Cytosolic
146	LG:349164.1:2001MAR30	777	799	forward 3	TM	Transmembrane
146	LG:349164.1:2001MAR30	800	818	forward 3	TM	Non-Cytosolic
146	LG:349164.1:2001MAR30	819	841	forward 3	TM	Transmembrane
146	LG:349164.1:2001MAR30	842	852	forward 3	TM	Cytosolic
146	LG:349164.1:2001MAR30	853	875	forward 3	TM	Transmembrane
146	LG:349164.1:2001MAR30	876	878	forward 3	TM	Non-Cytosolic
146	LG:349164.1:2001MAR30	879	898	forward 3	TM	Transmembrane
146	LG:349164.1:2001MAR30	899	909	forward 3	TM	Cytosolic Transmembrane
146	LG:349164.1:2001MAR30	910	932	forward 3	TM	
146	LG:349164.1:2001MAR30	933	941	forward 3	TM	Non-Cytosolic Transmembrane
146	LG:349164.1:2001MAR30	942	964	forward 3	TM	Cytosolic
146	LG:349164.1:2001MAR30	965	973	forward 1	TM	•
147	LG:350957.5:2001MAR30	1	71 94	forward 1 forward 1	TM TM	Non-Cytosolic Transmembrane
147	LG:350957.5:2001MAR30	72 95	106	forward 1	TM TM	Cytosolic
147	LG:350957.5:2001MAR30		129	forward 1	TM	Transmembrane
147	LG:350957.5:2001MAR30	107 130	151	forward 1	TM	Non-Cytosolic
147	LG:350957.5:2001MAR30 LG:350957.5:2001MAR30	150	174	forward 1	TM	Transmembrane
147	LG:350957.5:2001MAR30 LG:350957.5:2001MAR30	175	238	forward 1	TM	Cytosolic
147 147	LG:350957.5:2001MAR30	239	261	forward 1	TM	Transmembrane
177		130				
		131	-			

		TABI	.E.2			
CEO D NO.	Tamplata ID	Start	Stop	Frame	Domain Type	Topology
SEQ D NO:	Template ID LG:350957.5:2001MAR30	262	286	forward 1	TM	Non-Cytosolic
147 147	LG:350957.5:2001MAR30	287	309	forward 1	TM	Transmembrane
147	LG:350957.5:2001MAR30	310	379	forward 1	TM	Cytosolic
147	LG:350957.5:2001MAR30	1	18	forward 2	TM	Cytosolic
147	LG:350957.5:2001MAR30	19	41	forward 2	TM	Transmembrane
147	LG:350957.5:2001MAR30	42	71	forward 2	TM	Non-Cytosolic
147	LG:350957.5:2001MAR30	72	94	forward 2	TM	Transmembrane
147	LG:350957.5:2001MAR30	95	151	forward 2	TM	Cytosolic
147	LG:350957.5:2001MAR30	152	174	forward 2	TM	Transmembrane
147	LG:350957.5:2001MAR30	175	212	forward 2	TM	Non-Cytosolic
147	LG:350957.5:2001MAR30	213	232	forward 2	TM	Transmembrane
147	LG:350957.5:2001M/R30	233	244	forward 2	TM	Cytosolic
147	LG:350957.5:2001MAR30	245	262	forward 2	TM	Transmembrane
147	LG:350957.5:2001MAR30	263	271	forward 2	TM	Non-Cytosolic
147	LG:350957.5:2001MAR30	272	294	forward 2	TM	Transmembrane
147	LG:350957.5:2001MAR30	295	298	forward 2	TM	Cytosolic
147	LG:350957.5:2001MAR30	299	321	forward 2	TM	Transmembrane
147	LG:350957.5:2001MAR30	322	379	forward 2	TM	Non-Cytosolic
148	LG:383512.8:2001MAR30	1	833	forward 2	TM	Non-Cytosolic
148	LG:383512.8:2001MAR30	834	856	forward 2	TM	Transmembrane
148	LG:383512.8:2001MAR30	857	876	forward 2	TM	Cytosolic
148	LG:383512.8:2001MAR30	877	899	forward 2	TM	Transmembrane
148	LG:383512.8:2001MAR30	900	1052	forward 2	TM	Non-Cytosolic
149	LG:401163.10:2001MAR30	1	1167	forward 1	TM	Non-Cytosolic
149	LG:401163.10:2001MAR30	1168	1190	forward 1	TM	Transmembrane
	LG:401163.10:2001MAR30	1191	1270	forward 1	TM ·	Cytosolic
149	LG:401163.10:2001MAR30	1271	1290	forward 1	TM	Transmembrane
149	LG:401163.10:2001MAR30	1291	1492	forward 1	TM	Non-Cytosolic
150	LG:402133.1:2001MAR30	1	6	forward 3	TM	Cytosolic
150	LG:402133.1:2001MAR30	7	26	forward 3	TM	Transmembrane
150	LG:402133.1:2001MAR30	27	68	forward 3	TM	Non-Cytosolic
150	LG:402133.1:2001MAR30	69	91	forward 3	TM	Transmembrane
150	LG:402133.1:2001MAR30	92	476	forward 3	TM	Cytosolic
150	LG:402133.1:2001MAR30	477	499	forward 3 <sup>-</sup>	· TM	Transmembrane
150	LG:402133.1:2001MAR30	500	543	forward 3	TM	Non-Cytosolic
151	LG:405820.1:2001MAR30	1	242	forward 1	TM	Non-Cytosolic
151	LG:405820.1:2001MAR30	243	262	forward 1	TM	Transmembrane
151	LG:405820.1:2001MAR30	263	303	forward 1	TM	Cytosolic
152	LG:405846.1:2001MAR30	1	297	forward 1	TM	Non-Cytosolic
152	LG:405846.1:2001MAR30	298	320	forward 1	TM	Transmembrane
152	LG:405846.1:2001MAR30	321	356	forward 1	TM	Cytosolic
153	LG:407401.2:2001MAR30	1	542	forward 2	TM	Non-Cytosolic
153	LG:407401.2:2001MAR30	543	565	forward 2	TM	Transmembrane
153	LG:407401.2:2001MAR30	566	573	forward 2	TM	Cytosolic
153	LG:407401.2:2001MAR30	574	591	forward 2	TM	Transmembrane
153	LG:407401.2:2001MAR30	592	888	forward 2	TM	Non-Cytosolic
154	LG:408448.10:2001MAR30	1	636	forward 1	TM	Non-Cytosolic
154	LG:408448.10:2001MAR30	637	659	forward 1	TM	Transmembrane
154	LG:408448.10:2001MAR30	660	716	forward 1	TM	Cytosolic
154	LG:408448.10:2001MAR30	1	281	forward 2	TM	Non-Cytosolic
154	LG:408448.10:2001MAR30	282	304	forward 2	TM	Transmembrane
154	LG:408448.10:2001MAR30	305	324	forward 2	TM	Cytosolic
154	LG:408448.10:2001MAR30	325	347	forward 2	TM	Transmembrane
154	LG:408448.10:2001MAR30	348	715	forward 2	TM	Non-Cytosolic

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
154	LG:408448.10:2001MAR30	1	281	forward 3	TM	Non-Cytosolic
154	LG:408448.10:2001MAR30	282	304	forward 3	TM	Transmembrane
154	LG:408448.10:2001MAR30	305	324	forward 3	TM	Cytosolic
154	LG:408448.10:2001MAR30	325	347	forward 3	TM	Transmembrane
154	LG:408448.10:2001MAR30	348	715	forward 3	TM	Non-Cytosolic
155	LG:408854.13:2001MAR30	1	128	forward 1	TM	Non-Cytosolic
155	LG:408854.13:2001MAR30	. 129	148	forward 1	TM	Transmembrane
155	LG:408854.13:2001MAR30	149	191	forward 1	TM	Cytosolic
155	LG:408854.13:2001MAR30	192	214	forward 1	TM	Transmembrane
155	LG:408854.13:2001MAR30	215	218	forward 1	TM	Non-Cytosolic
155	LG:408854.13:2001MAR30	219	238	forward 1	TM	Transmembrane
155	LG:408854.13:2001MAR30	239	242	forward 1	TM	Cytosolic
155	LG:408854.13:2001MAR30	243	265	forward 1	TM	Transmembrane
155	LG:408854.13:2001MAR30	266	305	forward 1	TM	Non-Cytosolic
155	LG:408854.13:2001MAR30	306	328	forward 1	TM	Transmembrane
155	LG:408854.13:2001MAR30	329	544	forward 1	TM	Cytosolic
156	LG:411150.14:2001MAR30	1	676	forward 1	TM	Non-Cytosolic
156	LG:411150.14:2001MAR30	677	699	forward 1	TM	Transmembrane
156	LG:411150.14:2001MAR30	700	822	forward 1	TM	Cytosolic
156	LG:411150.14:2001MAR30	1	676	forward 2	TM	Non-Cytosolic
156	LG:411150.14:2001MAR30	677	699	forward 2	TM	Transmembrane
156	LG:411150.14:2001MAR30	700	822	forward 2	TM	Cytosolic
156	LG:411150.14:2001MAR30	1	99	forward 3	TM	Cytosolic
	LG:411150.14:2001MAR30	100	117	forward 3	TM	Transmembrane
156	LG:411150.14:2001MAR30	118	699	forward 3	TM	Non-Cytosolic
	LG:411150.14:2001MAR30	. 700	722	forward 3	TM	Transmembrane
156	LG:411150.14:2001MAR30	723	733	forward 3	TM	Cytosolic
	LG:411150:14:2001MAR30	734	751	forward 3	TM ·	Transmembrane
-156	LG:411150.14:2001MAR30	. 752	754	forward 3	TM	Non-Cytosolic
156	LG:411150.14:2001MAR30	755	777	forward 3	TM	Transmembrane
156	LG:411150.14:2001MAR30	778	821	forward 3	TM	Cytosolic
157	LG:411466.1:2001MAR30	1	111	forward 1	TM	Non-Cytosolic
157	LG:411466.1:2001MAR30	112	134	forward 1	TM	Transmembrane
157	LG:411466.1:2001MAR30	135	146	forward 1	. <b>TM</b>	Cytosolic
157	LG:411466.1:2001MAR30	147	169	forward 1	TM	Transmembrane
157	LG:411466.1:2001MAR30	170	188	forward 1	TM	Non-Cytosolic
157	LG:411466.1:2001MAR30	189	211	forward 1	TM	Transmembrane
157	LG:411466.1:2001MAR30	212	217	forward 1	TM	Cytosolic
157	LG:411466.1:2001MAR30	218	240	forward 1	TM	Transmembrane
. 157	LG:411466.1:2001MAR30	241	254	forward 1	TM	Non-Cytosolic
157	LG:411466.1:2001MAR30	255	274	forward 1	TM	Transmembrane
157	LG:411466.1:2001MAR30	275	333	forward 1	TM	Cytosolic
157	LG:411466.1:2001MAR30	334	351	forward 1	TM	Transmembrane
157	LG:411466.1:2001MAR30	352	404	forward 1	TM	Non-Cytosolic
157	LG:411466.1:2001MAR30	405	427	forward 1	TM	Transmembrane
157	LG:411466.1:2001MAR30	428	525	forward 1	TM	Cytosolic
157	LG:411466.1:2001MAR30	526	548	forward 1	TM	Transmembrane
157	LG:411466.1:2001MAR30	549	918	forward 1	TM	Non-Cytosolic
157	LG:411466.1:2001MAR30	1	70	forward 3	TM	Cytosolic
157	LG:411466.1:2001MAR30	71	93	forward 3	TM	Transmembrane
157	LG:411466.1:2001MAR30	94	110	forward 3	TM	Non-Cytosolic
157	LG:411466.1:2001MAR30	111	133	forward 3	TM	Transmembrane
157	LG:411466.1:2001MAR30	134	145	forward 3	TM	Cytosolic
157	LG:411466.1:2001MAR30	146	168	forward 3	TM	Transmembrane

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
157	LG:411466.1:2001MAR30	169	202	forward 3	TM	Non-Cytosolic
157	LG:411466.1:2001MAR30	203	225	forward 3	TM	Transmembrane
157	LG:411466.1:2001MAR30	226	231	forward 3	TM	Cytosolic
157	LG:411466.1:2001MAR30	232	254	forward 3	TM	Transmembrane
157	LG:411466.1:2001MAR30	255	918	forward 3	TM	Non-Cytosolic
158	LG:413969.68:2001MAR30	1	741	forward 2	TM	Non-Cytosolic
158	LG:413969.68:2001MAR30	742	764	forward 2	TM	Transmembrane
158	LG:413969.68:2001MAR30	765	770	forward 2	TM	Cytosolic
158	LG:413969.68:2001MAR30	771	793	forward 2	TM	Transmembrane
158	LG:413969.68:2001MAR30	794	807	forward 2	TM	Non-Cytosolic
158	LG:413969.68:2001MAR30	808	830	forward 2	TM	Transmembrane
158	LG:413969.68:2001MAR30	831	842	forward 2	TM	Cytosolic
158	LG:413969.68:2001MAR30	843	865	forward 2	TM	Transmembrane
158	LG:413969.68:2001MAR30	866	911	forward 2	TM	Non-Cytosolic
159	LG:419641.35:2001MAR30	1	347	forward 1	TM	Non-Cytosolic
159	LG:419641.35:2001MAR30	348	370	forward 1	TM	Transmembrane
159	LG:419641.35:2001MAR30	371	450	forward 1	TM	Cytosolic
159	LG:419641.35:2001MAR30	1	20	forward 2	TM	Cytosolic
159	LG:419641.35:2001MAR30	21	40	forward 2	TM	Transmembrane
159	LG:419641.35:2001MAR30	41	450	forward 2	TM	Non-Cytosolic
159	LG:419641.35:2001MAR30	1	352	forward 3	TM	Non-Cytosolic
159	LG:419641.35:2001MAR30	353	370	forward 3	TM	Transmembrane
159	LG:419641.35:2001MAR30	371	382	forward 3	TM	Cytosolic
159	LG:419641.35:2001MAR30	383	405	forward 3	TM	Transmembrane
159	LG:419641.35:2001MAR30	406	424	forward 3	TM	Non-Cytosolic
159	LG:419641.35:2001MAR30	425	447	forward 3	TM	Transmembrane
159	LG:419641.35:2001MAR30	448	450	forward 3	TM	Cytosolic
160 ·	LG:428206.7:2001MAR30	1 -	367		TM	Non-Cytosolic
160	LG:428206.7:2001MAR30	368	385	forward 2	TM	Transmembrane
160	LG:428206.7:2001MAR30	386	512	forward 2	TM	Cytosolic
161	LG:430059.1:2001MAR30	1	72	forward 1	TM	Non-Cytosolic
161	LG:430059.1:2001MAR30	73	95	forward 1	TM	Transmembrane
161	LG:430059.1:2001MAR30	96	106	forward 1	TM	Cytosolic
161	LG:430059.1:2001MAR30	107	129	forward 1	TM	Transmembrane
161	LG:430059.1:2001MAR30	130	143	forward 1	TM	Non-Cytosolic
161	LG:430059.1:2001MAR30	144	163	forward 1	TM	Transmembrane
161	LG:430059.1:2001MAR30	164	583	forward 1	TM	Cytosolic
161	LG:430059.1:2001MAR30	584	606	forward 1	TM	Transmembrane
161	LG:430059.1:2001MAR30	607	653	forward 1	TM	Non-Cytosolic
161	LG:430059.1:2001MAR30	654	676	forward 1	TM	Transmembrane
161	LG:430059.1:2001MAR30	677	783	forward 1	TM	Cytosolic
161	LG:430059.1:2001MAR30	784	806	forward 1	TM	Transmembrane
161	LG:430059.1:2001MAR30	807	869	forward 1	TM	Non-Cytosolic
161	LG:430059.1:2001MAR30	870	889	forward 1	TM	Transmembrane
161	LG:430059.1:2001MAR30	890	1017		TM	Cytosolic
161	LG:430059.1:2001MAR30	1	20	forward 2	TM	Cytosolic
161	LG:430059.1:2001MAR30	21	43	forward 2	TM	Transmembrane
161	LG:430059.1:2001MAR30	44	76	forward 2	TM	Non-Cytosolic
161	LG:430059.1:2001MAR30	77	96	forward 2	TM	Transmembrane
161	LG:430059.1:2001MAR30	97	102	forward 2	TM	Cytosolic
	LG:430059.1:2001MAR30	103	122	forward 2	TM	Transmembrane
161 161	LG:430059.1:2001MAR30	123	595	forward 2		Non-Cytosolic
	LG:430059.1:2001MAR30	596	618	forward 2	TM	Transmembrane
161	LG:430059.1:2001MAR30	619	645	forward 2		Cytosolic
161	LG.430033.1.2001MMX30	019	O+3	.v. waiu Z	1 141	Cy1030110

# TABLE 2

	m 1. ID	0	C+	г.	Daniel Tuna	T1
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
161	LG:430059.1:2001MAR30	646	668	forward 2	TM	Transmembrane
161	LG:430059.1:2001MAR30	669	671	forward 2	TM	Non-Cytosolic
161	LG:430059.1:2001MAR30	672	694	forward 2	TM	Transmembrane
161	LG:430059.1:2001MAR30	695	787	forward 2	TM	Cytosolic
161	LG:430059.1:2001MAR30	788	810	forward 2	· TM	Transmembrane
161	LG:430059.1:2001MAR30	811	835	forward 2	TM	Non-Cytosolic
161	LG:430059.1:2001MAR30	836	858	forward 2	TM	Transmembrane
161	LG:430059.1:2001MAR30	859	1017	forward 2	TM	Cytosolic
161	LG:430059.1:2001MAR30	1	75	forward 3	TM	Cytosolic
161	LG:430059.1:2001MAR30	76	95	forward 3	TM	Transmembrane
161	LG:430059.1:2001MAR30	96	104	forward 3	TM	Non-Cytosolic
161	LG:430059.1:2001MAR30	105	122	forward 3	TM	Transmembrane
161	LG:430059.1:2001MAR30	123	128	forward 3	TM	Cytosolic
161	LG:430059.1:2001MAR30	129	151	forward 3	TM	Transmembrane
161	LG:430059.1:2001MAR30	152	190	forward 3	TM	Non-Cytosolic
161	LG:430059.1:2001MAR30	191	213	forward 3	TM	Transmembrane
161	LG:430059.1:2001MAR30	214	456	forward 3	TM	Cytosolic
161	LG:430059.1:2001MAR30	457	479	forward 3	TM	Transmembrane
161	LG:430059.1:2001MAR30	480	513	forward 3	TM	Non-Cytosolic
161	LG:430059.1:2001MAR30	514	536	forward 3	TM	Transmembrane
161	LG:430059.1:2001MAR30	537	582	forward 3	TM	Cytosolic
161	LG:430059.1:2001MAR30	583	605	forward 3	TM	Transmembrane
161	LG:430059.1:2001MAR30	606	609	forward 3	TM	Non-Cytosolic
161	LG:430059.1:2001MAR30	·· 610	632	forward 3	TM	Transmembrane
161	LG:430059.1:2001MAR30	633	651	forward 3	TM	Cytosolic
161	LG:430059.1:2001MAR30	652	674	forward 3	TM	Transmembrane
161	LG:430059.1:2001MAR30	675	710.	forward 3	TM	Non-Cytosolic
161	LG:430059.1:2001MAR30	711	733	forward 3	··· TM	Transmembrane
161	LG:430059.1:2001MAR30	734	737	forward 3	TM	Cytosolic
161	LG:430059.1:2001MAR30	738	757	forward 3	TM	Transmembrane
161	LG:430059.1:2001MAR30	758	1017	forward 3	TM	Non-Cytosolic
162	LG:448040.3:2001MAR30	1	37	forward 1	TM	Cytosolic
162	LG:448040.3:2001MAR30	38	57	forward 1	. <b>TM</b>	Transmembrane
162	LG:448040.3:2001MAR30	58	169	forward 1	TM	Non-Cytosolic
162	LG:448040.3:2001MAR30	1	39	forward 2	TM	Cytosolic
162	LG:448040.3:2001MAR30	40	62	forward 2	TM	Transmembrane
162	LG:448040.3:2001MAR30	63	66	forward 2	TM	Non-Cytosolic
162	LG:448040.3:2001MAR30	67	86	forward 2	TM	Transmembrane
162	LG:448040.3:2001MAR30	87	168	forward 2	TM	Cytosolic
162	LG:448040.3:2001MAR30	1	39	forward 3	TM	Cytosolic
162	LG:448040.3:2001MAR30	40	62	forward 3	TM	Transmembrane
162	LG:448040.3:2001MAR30	63	168	forward 3	TM	Non-Cytosolic
163	LG:451274.1:2001MAR30	1	25	forward 2	TM	Non-Cytosolic
163	LG:451274.1:2001MAR30	26	48	forward 2	TM	Transmembrane
163	LG:451274.1:2001MAR30	49	54	forward 2	TM	Cytosolic
163	LG:451274.1:2001MAR30	55	77	forward 2	TM	Transmembrane
163	LG:451274.1:2001MAR30	78	467	forward 2	TM	Non-Cytosolic
164	LG:456110.1:2001MAR30	1	103	forward 3	TM	Cytosolic
164	LG:456110.1:2001MAR30	104	126	forward 3	TM	Transmembrane
164	LG:456110.1:2001MAR30	127	140	forward 3		Non-Cytosolic
164	LG:456110.1:2001MAR30	141	160	forward 3	TM	Transmembrane
164	LG:456110.1:2001MAR30	161	199	forward 3	TM	Cytosolic
165	LG:456954.1:2001MAR30	101	35	forward 1	TM	Cytosolic
165	LG:456954.1:2001MAR30	36	58	forward 1	TM	Transmembrane
103	LG. TJOJJ ZOOTWIAKJU	30		101 Walte 1	1141	2 millionionio

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
165	LG:456954.1:2001MAR30	59	102	forward 1	TM	Non-Cytosolic
165	LG:456954.1:2001MAR30	103	125	forward 1	TM	Transmembrane
165	LG:456954.1:2001MAR30	126	242	forward 1	TM	Cytosolic
165	LG:456954.1:2001MAR30	1	38	forward 3	TM	Cytosolic
165	LG:456954.1:2001MAR30	39	58	forward 3	TM	Transmembrane
165	LG:456954.1:2001MAR30	59	117	forward 3	TM	Non-Cytosolic
165	LG:456954.1:2001MAR30	118	140	forward 3	TM	Transmembrane
165	LG:456954.1:2001MAR30	141	242	forward 3	TM	Cytosolic
166	LG:474942.12:2001MAR30	1	6	forward 1	TM	Cytosolic
166	LG:474942.12:2001MAR30	7	29	forward 1	TM	Transmembrane
166	LG:474942.12:2001MAR30	30	872	forward 1	TM	Non-Cytosolic
166	LG:474942.12:2001MAR30	1	165	forward 3	TM	Cytosolic
166	LG:474942.12:2001MAR30	166	188	forward 3	TM	Transmembrane
166	LG:474942.12:2001MAR30	189	872	forward 3	TM	Non-Cytosolic
167	LG:475119.14:2001MAR30	1	122	forward 1	TM	Cytosolic
167	LG:475119.14:2001MAR30	123	145	forward 1	TM	Transmembrane
167	LG:475119.14:2001MAR30	146	149	forward 1	TM	Non-Cytosolic
167	LG:475119.14:2001MAR30	150	169	forward 1	TM	Transmembrane
167	LG:475119.14:2001MAR30	170	181	forward 1	TM	Cytosolic
167	LG:475119.14:2001MAR30	182	201	forward 1	TM	Transmembrane
167	LG:475119.14:2001MAR30	202	242	forward 1	TM	Non-Cytosolic
167	LG:475119.14:2001MAR30	243	265	forward 1	TM	Transmembrane
167	LG:475119.14:2001MAR30	266	459	forward 1	TM	Cytosolic
168	LG:479908.77:2001MAR30	. 1.	41	forward 3	TM	Cytosolic
168	LG:479908.77:2001MAR30	42	64	forward 3	TM	Transmembrane
	LG:479908.77:2001MAR30		150	forward 3	TM	Non-Cytosolic
169	LG:480127.47:2001MAR30		78	forward 3	TM	Non-Cytosolic
169	LG:480127.47:2001MAR30	79	101	forward 3	TM	Transmembrane
169	LG:480127.47:2001MAR30	102	190	forward 3		Cytosolic
170	LG:481154.12:2001MAR30	1	91	forward 3	TM	Cytosolic
170	LG:481154.12:2001MAR30	92	111	forward 3	TM	Transmembrane
170	LG:481154.12:2001MAR30	112	1082	forward 3	TM	Non-Cytosolic
170	LG:481154.12:2001MAR30	1083	1105	forward 3	TM	Transmembrane
170	LG:481154.12:2001MAR30	1106	1152	forward 3	TM	Cytosolic
	LG:481414.6:2001MAR30	1	376	forward 1	TM	Non-Cytosolic
171	LG:481414.6:2001MAR30	377	399	forward 1	TM	Transmembrane
171	LG:481414.6:2001MAR30	400	531	forward 1	TM	Cytosolic
171	LG:481414.6:2001MAR30	532	554	forward 1	TM	Transmembrane
171	LG:481414.6:2001MAR30	555	877	forward 1	TM	Non-Cytosolic
171	LG:481414.6:2001MAR30	1	752	forward 3	TM	Non-Cytosolic
171	LG:481414.6:2001MAR30	753	775	forward 3	TM	Transmembrane
		776	781	forward 3	TM	Cytosolic
171	LG:481414.6:2001MAR30	782	801	forward 3	TM	Transmembrane
171	LG:481414.6:2001MAR30	802	877	forward 3	TM	Non-Cytosolic
171	LG:481414.6:2001MAR30				TM	Non-Cytosolic
172	LG:481941.1:2001MAR30	1	19	forward 2		Transmembrane
172	LG:481941.1:2001MAR30	20	41	forward 2	TM	
172	LG:481941.1:2001MAR30	42	491	forward 2	TM	Cytosolic
172	LG:481941.1:2001MAR30	492	514	forward 2	TM	Transmembrane
172	LG:481941.1:2001MAR30	515	523	forward 2	TM	Non-Cytosolic
172	LG:481941.1:2001MAR30	524	546	forward 2	TM	Transmembrane
172	LG:481941.1:2001MAR30	547	759	forward 2	TM	Cytosolic
172	LG:481941.1:2001MAR30	760	782	forward 2	TM	Transmembrane
172	LG:481941.1:2001MAR30	783	801	forward 2	TM	Non-Cytosolic
172	LG:481941.1:2001MAR30	802	824	forward 2	TM	Transmembrane

TABI	LE 2
Start	Stop

		TABL	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
172	LG:481941.1:2001MAR30	825	836	forward 2	TM	Cytosolic
172	LG:481941.1:2001MAR30	837	859	forward 2	TM	Transmembrane
172	LG:481941.1:2001MAR30	860	1184	forward 2	TM	Non-Cytosolic
172	LG:481941.1:2001MAR30	1185	1204	forward 2	TM	Transmembrane
172	LG:481941.1:2001MAR30	1205	1263	forward 2	TM	Cytosolic
172	LG:481941.1:2001MAR30	1	11	forward 3	TM	Cytosolic
172	LG:481941.1:2001MAR30	12	34	forward 3	TM	Transmembrane
172	LG:481941.1:2001MAR30	35	1263	forward 3	TM	Non-Cytosolic
173	LG:887216.4:2001MAR30	1	248	forward 2	TM	Cytosolic
173	LG:887216.4:2001MAR30	249	266	forward 2	TM	Transmembrane
173	LG:887216.4:2001MAR30	267	283	forward 2	TM	Non-Cytosolic
174	LG:899402.3:2001MAR30	1	754	forward 2	TM	Non-Cytosolic
174	LG:899402.3:2001MAR30	755	774	forward 2	TM	Transmembrane
174	LG:899402.3:2001MAR30	775	914	forward 2	TM	Cytosolic
174	LG:899402.3:2001MAR30	915	937	forward 2	TM	Transmembrane
174	LG:899402.3:2001MAR30	938	1020	forward 2	TM	Non-Cytosolic
174	LG:899402.3:2001MAR30	1021	1043	forward 2	TM	Transmembrane
174	LG:899402.3:2001MAR30	1044	1098	forward 2	TM	Cytosolic
174	LG:899402.3:2001MAR30	1099	1121	forward 2	TM	Transmembrane
174	LG:899402.3:2001MAR30	1122	1784	forward 2	TM	Non-Cytosolic
174	LG:899402.3:2001MAR30	1	840	forward 3	TM	Non-Cytosolic
174	LG:899402.3:2001MAR30	841	863	forward 3	TM	Transmembrane
174	LG:899402.3:2001MAR30	864	875	forward 3	TM	Cytosolic
174	LG:899402.3:2001MAR30	876		forward 3	TM	Transmembrane
174	LG:899402.3:2001MAR30	. 899	926	forward 3	TM	Non-Cytosolic
174	LG:899402.3:2001MAR30	927	949	forward 3	TM	Transmembrane
174	LG:899402.3:2001MAR30	950	1136	forward 3	TM	Cytosolic
174	LG:899402.3:2001MAR30	1137	1159	forward 3	TM	Transmembrane
174	LG:899402.3:2001MAR30	1160	1649	forward 3	TM	Non-Cytosolic
174	LG:899402.3:2001MAR30	1650	1672	forward 3	TM	Transmembrane
174	LG:899402.3:2001MAR30	1673	1711	forward 3	TM	Cytosolic
174	LG:899402.3:2001MAR30	1712	1731	forward 3	TM	Transmembrane
174	LG:899402.3:2001MAR30	1732	1761	forward 3	TM	Non-Cytosolic
174	LG:899402.3:2001MAR30	1762	1779	forward 3	TM	Transmembrane
174	LG:899402.3:2001MAR30	1780	1783	forward 3	TM	Cytosolic -
175	LG:899894.2:2001MAR30	1	8	forward 2	TM	Cytosolic
175	LG:899894.2:2001MAR30	. 9	26	forward 2	TM	Transmembrane
175	LG:899894.2:2001MAR30	27	35	forward 2	TM	Non-Cytosolic
175	LG:899894.2:2001MAR30	36	53	forward 2	TM	Transmembrane
175	LG:899894.2:2001MAR30	54	72	forward 2	TM	Cytosolic
175	LG:899894.2:2001MAR30	73	95	forward 2	TM	Transmembrane
175	LG:899894.2:2001MAR30	96	563	forward 2	TM	Non-Cytosolic
175	LG:899894.2:2001MAR30	1	495	forward 3	TM	Non-Cytosolic
175	LG:899894.2:2001MAR30	496	518	forward 3	. TM	Transmembrane
175	LG:899894.2:2001MAR30	519	563	forward 3	TM	Cytosolic
176	LG:977908.1:2001MAR30	1	200	forward 1	TM	Cytosolic
176	LG:977908.1:2001MAR30	201	223	forward 1	TM	Transmembrane
176	LG:977908.1:2001MAR30	224	242	forward 1	TM	Non-Cytosolic
176	LG:977908.1:2001MAR30	243	262	forward 1	TM	Transmembrane
176	LG:977908.1:2001MAR30	263	563	forward 1	TM	Cytosolic
176	LG:977908.1:2001MAR30	564	586	forward 1	TM	Transmembrane
176	LG:977908.1:2001MAR30	587	595	forward 1	TM	Non-Cytosolic
176	LG:977908.1:2001MAR30	596	618	forward 1	TM	Transmembrane
176	LG:977908.1:2001MAR30	619	710	forward 1	TM	Cytosolic
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		TABL	E 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
176	LG:977908.1:2001MAR30	711	733	forward 1	TM	Transmembrane
176	LG:977908.1:2001MAR30	734	1236	forward 1	TM	Non-Cytosolic
176	LG:977908.1:2001MAR30	1	561	forward 2	TM	Non-Cytosolic
176	LG:977908.1:2001MAR30	562	584	forward 2	TM	Transmembrane
176	LG:977908.1:2001MAR30	585	596	forward 2	TM	Cytosolic
176	LG:977908.1:2001MAR30	597	619	forward 2	TM	Transmembrane
176	LG:977908.1:2001MAR30	620	1236	forward 2	TM	Non-Cytosolic
177	LG:977929.1:2001MAR30	1	688	forward 1	TM	Non-Cytosolic
177	LG:977929.1:2001MAR30	689	708	forward 1	TM	Transmembrane
177	LG:977929.1:2001MAR30	709	810	forward 1	TM	Cytosolic
177	LG:977929.1:2001MAR30	811	828	forward 1	TM	Transmembrane
177	LG:977929.1:2001MAR30	829	837	forward 1	TM	Non-Cytosolic
177	LG:977929.1:2001MAR30	838	860	forward 1	TM	Transmembrane
177	LG:977929.1:2001MAR30	861	890	forward 1	TM	Cytosolic
177	LG:977929.1:2001MAR30	891	913	forward 1	TM	Transmembrane
177	LG:977929.1:2001MAR30	914	1006	forward 1	TM	Non-Cytosolic
177	LG:977929.1:2001MAR30	1	837	forward 2	TM	Non-Cytosolic
177	LG:977929.1:2001MAR30	838	860	forward 2	TM	Transmembrane
177	LG:977929.1:2001MAR30	861	1005	forward 2	TM	Cytosolic
177	LG:977929.1:2001MAR30	1	776	forward 3	TM	Non-Cytosolic
177	LG:977929.1:2001MAR30	777	799	forward 3	TM	Transmembrane
177	LG:977929.1:2001MAR30	800	834	forward 3	TM	Cytosolic
177	LG:977929.1:2001MAR30	835	857	forward 3	TM	Transmembrane
177	LG:977929.1:2001MAR30	858	889 .	-	TM	Non-Cytosolic
177	LG:977929.1:2001MAR30	890	912	forward 3	TM	Transmembrane
: 177	LG:977929.1:2001MAR30	913		forward 3		Cytosolic
177	LG:977929.1:2001MAR30	925	947:	forward 3	TM	Transmembrane
177	LG:977929.1:2001MAR30	948	974	forward 3		Non-Cytosolic
177	LG:977929.1:2001MAR30	975		forward 3	TM	Transmembrane
177	LG:977929.1:2001MAR30	998	1005	forward 3	TM	Cytosolic
178	LG:978008.14:2001MAR30	1	991	forward 2	TM	Non-Cytosolic
178	LG:978008.14:2001MAR30	992	1014	forward 2	TM	Transmembrane
178	LG:978008.14:2001MAR30	1015	1118	forward 2	TM	Cytosolic
178	LG:978008.14:2001MAR30	1119	1136	forward 2	TM	Transmembrane
. 178	LG:978008.14:2001MAR30	1137	1202	forward 2	TM	Non-Cytosolic
178	LG:978008.14:2001MAR30	1203	1222	forward 2	TM	Transmembrane
178	LG:978008.14:2001MAR30	1223	1431	forward 2	TM	Cytosolic
178	LG:978008.14:2001MAR30	1432	1449	forward 2	TM	Transmembrane
178	LG:978008.14:2001MAR30	1450	1463	forward 2	TM	Non-Cytosolic
178	LG:978008.14:2001MAR30	1464	1486	forward 2	TM	Transmembrane
178	LG:978008.14:2001MAR30	1487	1499	forward 2	TM	Cytosolic
179	LG:979054.18:2001MAR30	1	491	forward 1	TM	Non-Cytosolic
179	LG:979054.18:2001MAR30	492	514	forward 1	TM	Transmembrane
179	LG:979054.18:2001MAR30	515	520	forward 1	TM	Cytosolic
179	LG:979054.18:2001MAR30	521	543	forward 1	TM	Transmembrane
179	LG:979054.18:2001MAR30	544	1150	forward 1	TM	Non-Cytosolic
179	LG:979054.18:2001MAR30	1	490	forward 3	TM	Non-Cytosolic
179	LG:979054.18:2001MAR30	491	513	forward 3	TM	Transmembrane
179	LG:979054.18:2001MAR30	514	514	forward 3	TM	Cytosolic
179	LG:979054.18:2001MAR30	515	537	forward 3	TM	Transmembrane
179	LG:979054.18:2001MAR30	538	1149	forward 3	TM	Non-Cytosolic
180	LG:979185.10:2001MAR30	1	3	forward 1	TM	Non-Cytosolic
180	LG:979185.10:2001MAR30	4	26	forward 1	TM	Transmembrane
180	LG:979185.10:2001MAR30	27	277	forward 1	TM	Cytosolic
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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
180	LG:979185.10:2001MAR30	278	300	forward 1	TM	Transmembrane
180	LG:979185.10:2001MAR30	301	319	forward 1	TM	Non-Cytosolic
180	LG:979185.10:2001MAR30	320	339	forward 1	TM	Transmembrane
180	LG:979185.10:2001MAR30	340	533	forward 1	TM	Cytosolic
180	LG:979185.10:2001MAR30	1	241	forward 2	TM	Non-Cytosolic
180	LG:979185.10:2001MAR30	242	264	forward 2	TM	Transmembrane
180	LG:979185.10:2001MAR30	265	276	forward 2	TM	Cytosolic
180	LG:979185.10:2001MAR30	277	296	forward 2	TM	Transmembrane
180	LG:979185.10:2001MAR30	297	501	forward 2	TM	Non-Cytosolic
180	LG:979185.10:2001MAR30	502	524	forward 2	TM	Transmembrane
180	LG:979185.10:2001MAR30	525	533	forward 2	TM	Cytosolic
180	LG:979185.10:2001MAR30	1	6	forward 3	TM	Cytosolic
180	LG:979185.10:2001MAR30	7	24	forward 3	TM ·	Transmembrane
180	LG:979185.10:2001MAR30	25	38	forward 3	TM	Non-Cytosolic
180	LG:979185.10:2001MAR30	39	61	forward 3	TM	Transmembrane
180	LG:979185.10:2001MAR30	62	241	forward 3	TM	Cytosolic
180	LG:979185.10:2001MAR30	242	264	forward 3	TM	Transmembrane
180	LG:979185.10:2001MAR30	265	273	forward 3	TM	Non-Cytosolic
180	LG:979185.10:2001MAR30	274	296	forward 3	TM	Transmembrane
180	LG:979185.10:2001MAR30	297	315	forward 3	TM	Cytosolic
180	LG:979185.10:2001MAR30	316	338	forward 3	TM	Transmembrane
180	LG:979185.10:2001MAR30	339	362	forward 3	TM	Non-Cytosolic
180	LG:979185.10:2001MAR30	363	385	forward 3	TM	Transmembrane
180	LG:979185.10:2001MAR30	386	404	forward 3	TM	Cytosolic
180	LG:979185.10:2001MAR30	405	427	forward 3	TM	Transmembrane
180	LG:979185.10:2001MAR30	428	532	forward 3	TM	Non-Cytosolic
181	LG:983654.1:2001MAR30	1	319	forward 2	TM	Non-Cytosolic
181		320	342	forward 2	•	Transmembrane
181	LG:983654.1:2001MAR30	343	348	forward 2	TM	Cytosolic
181	LG:983654.1:2001MAR30	349	368	forward 2	TM	Transmembrane
181	LG:983654.1:2001MAR30	369	369	forward 2	TM	Non-Cytosolic
181	LG:983654.1:2001MAR30	1	237	forward 3	TM	Cytosolic
181	LG:983654.1:2001MAR30	238	255	forward 3	TM	Transmembrane
181	LG:983654.1:2001MAR30	256	319	forward 3	TM	Non-Cytosolic
181	LG:983654.1:2001MAR30	320	342	forward 3	TM	Transmembrane
181	LG:983654.1:2001MAR30	343	368	forward 3	TM	Cytosolic
182	LG:985092.12:2001MAR30	1	118	forward 3	TM	Cytosolic
182	LG:985092.12:2001MAR30	119	141	forward 3	TM	Transmembrane
182	LG:985092.12:2001MAR30	142	369	forward 3	TM	Non-Cytosolic
183	LG:987396.8:2001MAR30	1	132	forward 2	TM	Non-Cytosolic
183	LG:987396.8:2001MAR30	133	152	forward 2	TM	Transmembrane
183	LG:987396.8:2001MAR30	153	273	forward 2	TM	Cytosolic
183	LG:987396.8:2001MAR30	274	296	forward 2	TM	Transmembrane
183	LG:987396.8:2001MAR30	297	924	forward 2	TM	Non-Cytosolic
183	LG:987396.8:2001MAR30	1	270	forward 3	TM	Non-Cytosolic
183	LG:987396.8:2001MAR30	271	293	forward 3	TM	Transmembrane
. 183	LG:987396.8:2001MAR30	294	358	forward 3	TM	Cytosolic
183	LG:987396.8:2001MAR30	359	381	forward 3	TM	Transmembrane
183	LG:987396.8:2001MAR30	382	924	forward 3	TM	Non-Cytosolic
184	LG:987418.10:2001MAR30	1	454	forward 2	TM	Non-Cytosolic
184	LG:987418.10:2001MAR30	455	474	forward 2		Transmembrane
184	LG:987418.10:2001MAR30	475	479	forward 2		Cytosolic
185	LG:997203.25:2001MAR30	l	801	forward 1	TM	Non-Cytosolic
185	LG:997203.25:2001MAR30	802	824	forward 1		Transmembrane

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
185	LG:997203.25:2001MAR30	825	830	forward 1	TM	Cytosolic
185	LG:997203.25:2001MAR30	831	846	forward 1	TM	Transmembrane
185	LG:997203.25:2001MAR30	847	855	forward 1	TM	Non-Cytosolic
185	LG:997203.25:2001MAR30	856	875	forward I	TM	Transmembrane
185	LG:997203.25:2001MAR30	876	924	forward 1	TM	Cytosolic
185	LG:997203.25:2001MAR30	925	947	forward 1	TM	Transmembrane
185	LG:997203.25:2001MAR30	948	980	forward 1	TM	Non-Cytosolic
185	LG:997203.25:2001MAR30	981	1003	forward l	TM	Transmembrane
185	LG:997203.25:2001MAR30	1004		forward 1	TM	Cytosolic
185	LG:997203.25:2001MAR30	1	974	forward 3	TM	Non-Cytosolic
185	LG:997203.25:2001MAR30	975	992	forward 3	TM	Transmembrane
185	LG:997203.25:2001MAR30	993	1048	forward 3	TM	Cytosolic
185	LG:997203.25:2001MAR30	1049	1071	forward 3	TM	Transmembrane
185	LG:997203.25:2001MAR30	1072	1291	forward 3	TM	Non-Cytosolic
186	LG:997477.8:2001MAR30	1	59	forward 2	TM	Non-Cytosolic
186	LG:997477.8:2001MAR30	60	82	forward 2	TM	Transmembrane
186	LG:997477.8:2001MAR30	83 <sup>.</sup>	275	forward 2	TM	Cytosolic
186	LG:997477.8:2001MAR30	276	298	forward 2	TM	Transmembrane
186	LG:997477.8:2001MAR30	299	301	forward 2	TM	Non-Cytosolic
186	LG:997477.8:2001MAR30	302	324	forward 2	TM	Transmembrane
186	LG:997477.8:2001MAR30	325	401	forward 2	TM	Cytosolic
187	LG:998855.4:2001MAR30	1	50	forward 1	TM	Cytosolic
187	LG:998855.4:2001MAR30	51	73	forward 1	TM	Transmembrane
. 187	LG:998855.4:2001MAR30	74	333	forward 1	TM	Non-Cytosolic
188	LG:999093.1:2001MAR30	1	1115	forward 1	TM .	Non-Cytosolic
· 188	LG:999093.1:2001MAR30	1116		forward 1.	TM	Transmembrane
188	LG:999093.1:2001MAR30	1139	1316	forward 1	TM	Cytosolic
188	LG:999093.1:2001MAR30	1317	1339	forward 1	TM	Transmembrane
188	LG:999093.1:2001MAR30	1340	1554	forward 1	TM	Non-Cytosolic
188	LG:999093.1:2001MAR30	1	1073	forward 2	TM	Non-Cytosolic Transmembrane
188	LG:999093.1:2001MAR30	1074	1093	forward 2	TM	Cytosolic
188	LG:999093.1:2001MAR30	1094	1099	forward 2 forward 2	TM TM	Transmembrane
188.	LG:999093.1:2001MAR30	1100 1120	1119 1123	forward 2	TM	Non-Cytosolic
188	LG:999093.1:2001MAR30	1120	1143	forward 2	TM	Transmembrane
188	LG:999093.1:2001MAR30	1144	1163	forward 2	TM	Cytosolic
188	LG:999093.1:2001MAR30 LG:999093.1:2001MAR30	1164	1186	forward 2	TM	Transmembrane
188 188	LG:999093.1:2001MAR30 LG:999093.1:2001MAR30	1187	1261	forward 2	TM	Non-Cytosolic
188	LG:999093.1:2001MAR30 LG:999093.1:2001MAR30	1262	1284	forward 2	TM	Transmembrane
188	LG:999093.1:2001MAR30	1285		forward 2	TM	Cytosolic
188	LG:999093.1:2001MAR30	1297	1314	forward 2	TM	Transmembrane
188	LG:999093.1:2001MAR30	1315	1318	forward 2	TM	Non-Cytosolic
188	LG:999093.1:2001MAR30	1319	1341	forward 2	TM	Transmembrane
188	LG:999093.1:2001MAR30	1342	1394	forward 2	TM	Cytosolic
188	LG:999093.1:2001MAR30	1395	1417	forward 2	TM	Transmembrane
188	LG:999093.1:2001MAR30	1418	1554	forward 2	TM	Non-Cytosolic
188	LG:999093.1:2001MAR30	1	422	forward 3	TM	Non-Cytosolic
188	LG:999093.1:2001MAR30	423	445	forward 3	TM	Transmembrane
188	LG:999093.1:2001MAR30	446	536	forward 3	TM	Cytosolic
188	LG:999093.1:2001MAR30	537	559	forward 3	TM	Transmembrane
188	LG:999093.1:2001MAR30	560	760	forward 3	TM	Non-Cytosolic
188	LG:999093.1:2001MAR30	761	783	forward 3	TM	Transmembrane
188	LG:999093.1:2001MAR30	784	1077	forward 3	TM	Cytosolic
188	LG:999093.1:2001MAR30	1078	1100		·TM	Transmembrane
= -		100				•

## TABLE 2 Domain Type Topology Start Stop SEQ D NO: Template ID Frame Non-Cytosolic LG:999093.1:2001MAR30 1101 1109 forward 3 TM 188 Transmembrane LG:999093.1:2001MAR30 1110 1132 forward 3 TM 188 TM Cytosolic 1133 1317 forward 3 188 LG:999093.1:2001MAR30 1340 TM Transmembrane LG:999093.1:2001MAR30 1318 forward 3 188 1343 forward 3 TM Non-Cytosolic LG:999093.1:2001MAR30 1341 188 1344 1363 forward 3 TM Transmembrane LG:999093.1:2001MAR30 188 TM Cytosolic 1364 1375 forward 3 188 LG:999093.1:2001MAR30 Transmembrane 1376 1395 forward 3 TM LG:999093.1:2001MAR30 188 Non-Cytosolic 1396 1468 forward 3 TM LG:999093.1:2001MAR30 188 TM Transmembrane 1469 1488 forward 3 LG:999093.1:2001MAR30 188 1499 forward 3 TM Cytosolic 1489 188 LG:999093.1:2001MAR30 1522 forward 3 TM Transmembrane 1500 LG:999093.1:2001MAR30 188 TM Non-Cytosolic 1523 1553 forward 3 188 LG:999093.1:2001MAR30 1406 forward 1 TM Non-Cytosolic LG:999183.1:2001MAR30 189 1 1407 1424 forward 1 TM Transmembrane 189 LG:999183.1:2001MAR30 1425 1443 forward 1 TM Cytosolic 189 LG:999183.1:2001MAR30 1444 1463 forward 1 TM Transmembrane 189 LG:999183.1:2001MAR30 1464 1477 forward 1 TM Non-Cytosolic 189 LG:999183.1:2001MAR30 189 LG:999183.1:2001MAR30 1478 1500 forward 1 TM Transmembrane Cytosolic LG:999183.1:2001MAR30 1501 1615 forward 1 TM 189 1638 forward 1 TM Transmembrane 1616 189 LG:999183.1:2001MAR30 forward 1 Non-Cytosolic 1642 TM 189 LG:999183.1:2001MAR30 1639 Cytosolic TM 190 LI:1032972.1:2001MAY17 1 55 forward 1 Transmembrane 56 78 forward 1 TM 190 LI:1032972.1:2001MAY17 LI:1032972.1:2001MAY17 79 336 forward 1 TM Non-Cytosolic 190 Cytosolic 1 58 forward 2 TM LI:1032972.1:2001MAY17 190 59 81 forward 2 TM Transmembrane ; LI:1032972.1:2001MAY17 190 295 TM Non-Cytosolic 82 forward 2 190 LI:1032972.1:2001MAY17 TM Transmembrane 318 forward 2 190 LI:1032972.1:2001MAY17 296 Cytosolic 319 335 forward 2 TM 190 LI:1032972.1:2001MAY17 12 forward 3 TM Non-Cytosolic 190 LI:1032972.1;2001MAY17 1 13 35 forward 3 TM Transmembrane 190 LI:1032972.1:2001MAY17 36 55 forward 3 TM Cytosolic 190 LI:1032972.1:2001MAY17 forward 3 TM Transmembrane 56 78 190 LI:1032972.1:2001MAY17 Non-Cytosolic 79 forward 3 TM 190 LI:1032972.1:2001MAY17 335 Non-Cytosolic 191 LI:170666.6:2001MAY17 1 155 forward 3 TM Transmembrane 156 178 forward 3 TM 191 LI:170666.6:2001MAY17 TM Cytosolic 179 222 forward 3 191 LI:170666.6:2001MAY17 336 forward 1 TM Non-Cytosolic 1 192 LI:197048.10:2001MAY17 Transmembrane 359 forward 1 TM 337 192 LI:197048.10:2001MAY17 598 TM Cytosolic LI:197048.10:2001MAY17 360 forward 1 192 599 621 forward 1 TM Transmembrane 192 LI:197048.10:2001MAY17 TM Non-Cytosolic 622 640 forward 1 192 LI:197048.10:2001MAY17 Transmembrane 641 663 forward 1 TM 192 LI:197048.10:2001MAY17 TM Cytosolic 664 714 forward 1 192 LI:197048.10:2001MAY17 737 TM Transmembrane 192 LI:197048.10:2001MAY17 715 forward 1 Non-Cytosolic 738 751 forward 1 TM 192 LI:197048.10:2001MAY17 TM Transmembrane 752 771 forward 1 192 LI:197048.10:2001MAY17 772 829 forward 1 TM Cytosolic LI:197048.10:2001MAY17 192 324 forward 2 TM Cytosolic 192 LI:197048.10:2001MAY17 1 325 347 TM Transmembrane 192 LI:197048.10:2001MAY17 forward 2 348 361 forward 2 TM Non-Cytosolic 192 LI:197048.10:2001MAY17 192 LI:197048.10:2001MAY17 362 384 forward 2 TM Transmembrane

488

forward 2

TM

192

LI:197048.10:2001MAY17

Cytosolic

PCT/US02/09921 WO 02/083876

## TABLE 2 Domain Type Topology Start Stop Frame Template ID SEQ D NO: TM Transmembrane 489 506 forward 2 192 LI:197048.10:2001MAY17 TM Non-Cytosolic 507 509 forward 2 LI:197048.10:2001MAY17 192 TM Transmembrane 510 529 forward 2 LI:197048.10:2001MAY17 192 530 597 forward 2 TM Cytosolic LI:197048.10:2001MAY17 192 TM Transmembrane 598 620 forward 2 192 LI:197048.10:2001MAY17 TM Non-Cytosolic 639 forward 2 192 LI:197048.10:2001MAY17 621 Transmembrane LI:197048.10:2001MAY17 640 662 forward 2 TM 192 663 797 forward 2 TM Cytosolic LI:197048.10:2001MAY17 192 Transmembrane 798 820 forward 2 TM LI:197048.10:2001MAY17 192 TM Non-Cytosolic 821 828 forward 2 192 LI:197048.10:2001MAY17 Non-Cytosolic LI:197048.10:2001MAY17 1 376 forward 3 TM 192 Transmembrane 377 399 forward 3 TM LI:197048.10:2001MAY17 192 436 forward 3 TM Cytosolic 400 192 LI:197048.10:2001MAY17 459 forward 3 TM Transmembrane LI:197048.10:2001MAY17 437 192 Non-Cytosolic forward 3 TM 192 LI:197048.10:2001MAY17 460 488 Transmembrane 511 forward 3 TM 192 LI:197048.10:2001MAY17 489 forward 3 TM Cytosolic 512 523 LI:197048.10:2001MAY17 192 forward 3 TM Transmembrane 524 546 192 LI:197048.10:2001MAY17 TM Non-Cytosolic 555 forward 3 192 LI:197048.10:2001MAY17 547 Transmembrane forward 3 TM 556 578 192 LI:197048.10:2001MAY17 Cytosolic 579 597 forward 3 TM 192 LI:197048.10:2001MAY17 TM Transmembrane 598 617 forward 3 192 LI:197048.10:2001MAY17 Non-Cytosolic 828 forward 3 TM 618 LI:197048.10:2001MAY17 192 TM Non-Cytosolic 33 forward 1 193 LI:228655.5:2001MAY17 1 TM Transmembrane 34 56 forward 1 LI:228655.5:2001MAY17 193 TM Cytosolic 57 76 forward 1 193 LI:228655.5:2001MAY17 77 94 forward 1 TM Transmembrane. 193 LI:228655.5:2001MAY17 Non-Cytosolic LI:228655.5:2001MAY17 95 108 forward 1 TM 193 TM Transmembrane 109 131 forward 1 193 LI:228655.5:2001MAY17 200 TM Cytosolic 132 forward 1. 193 LI:228655.5:2001MAY17 TM Transmembrane 223 forward 1 LI:228655.5:2001MAY17 201 193 Non-Cytosolic 237 forward 1 TM 193 LI:228655.5:2001MAY17 224 TM Non-Cytosolic 367 forward 1 194 LI:229789.6:2001MAY17 1 Transmembrane 390 forward 1 TM 368 194 LI:229789.6:2001MAY17 TM Cytosolic 391 394 forward 1 194 LI:229789.6:2001MAY17 forward 1 TM Non-Cytosolic 458 195 LI:231500.8:2001MAY17 1 TM Transmembrane 459 forward 1 477 LI:231500.8:2001MAY17 195 Cytosolic forward 1 TM 478 481 195 LI:231500.8:2001MAY17 Cytosolic 6 forward 3 TM LI:253851.26:2001MAY17 1 196 25 forward 3 TM Transmembrane 7 LI:253851.26:2001MAY17 196 34 forward 3 TM Non-Cytosolic 26 196 LI:253851.26:2001MAY17 57 forward 3 TM Transmembrane 35 196 LI:253851.26:2001MAY17 Cytosolic forward 3 TM 58 414 196 LI:253851.26:2001MAY17 Transmembrane 415 437 forward 3 TM 196 LI:253851.26:2001MAY17 LI:253851.26:2001MAY17 438 477 forward 3 TM Non-Cytosolic 196 Transmembrane 478 497 forward 3 TM LI:253851.26:2001MAY17 196 TM Cytosolic 498 517 forward 3 196 LI:253851.26:2001MAY17 Transmembrane TM 518 537 forward 3 196 LI:253851.26:2001MAY17 Non-Cytosolic LI:253851.26:2001MAY17 538 556 forward 3 TM 196 forward 3 TM Transmembrane LI:253851.26:2001MAY17 557 579 196 Cytosolic 748 forward 3 TM 580 196 LI:253851.26:2001MAY17 TM Non-Cytosolic forward 1 197 LI:373302.1:2001MAY17 1 61 Transmembrane 84 forward 1 TM 197 LI:373302.1:2001MAY17 62 Cytosolic

197

LI:373302.1:2001MAY17

104

forward 1

TM

TABLE 2						
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
197	LI:373302.1:2001MAY17	105	124	forward 1	TM	Transmembrane
197	LI:373302.1:2001MAY17	125	457	forward 1	TM	Non-Cytosolic
197	LI:373302.1:2001MAY17	1	110	forward 2	TM	Non-Cytosolic
197	LI:373302.1:2001MAY17	111	133	forward 2	TM	Transmembrane
197	LI:373302.1:2001MAY17	134	161	forward 2	TM	Cytosolic
197	LI:373302.1:2001MAY17	162	184	forward 2	TM	Transmembrane
197	LI:373302.1:2001MAY17	185	214	forward 2	TM	Non-Cytosolic
197	LI:373302.1:2001MAY17	215	237	forward 2	TM	Transmembrane
197	LI:373302.1:2001MAY17	238	395	forward 2	TM	Cytosolic
197	LI:373302.1:2001MAY17	396	418	forward 2	TM	Transmembrane
197	LI:373302.1:2001MAY17	419	456	forward 2	TM	Non-Cytosolic
197	LI:373302.1:2001MAY17	1	98	forward 3	TM	Cytosolic
197	LI:373302.1:2001MAY17	99	121	forward 3	TM	Transmembrane
197	LI:373302.1:2001MAY17	122	368	forward 3	TM	Non-Cytosolic
197	LI:373302.1:2001MAY17	369	391	forward 3	TM	Transmembrane
197	LI:373302.1:2001MAY17	392	411	forward 3	TM	Cytosolic
197	LI:373302.1:2001MAY17	412	434	forward 3	TM	Transmembrane
197	LI:373302.1:2001MAY17	435	456	forward 3	TM	Non-Cytosolic
198	LI:405707.12:2001MAY17	1	14	forward 2	TM	Non-Cytosolic
198	LI:405707.12:2001MAY17	15	37	forward 2	TM	Transmembrane
198	LI:405707.12:2001MAY17	38	128	forward 2	TM	Cytosolic
198	LI:405707.12:2001MAY17	129	146	forward 2	TM	Transmembrane
198	LI:405707.12:2001MAY17	147	149	forward 2	TM	Non-Cytosolic
198	LI:405707.12:2001MAY17	150	172	forward 2	TM	Transmembrane
198	LI:405707.12:2001MAY17	173	438	forward 2	TM	Cytosolic
	LI:411441.8:2001MAY17	1:	92		TM	Cytosolic
199	LI:411441.8:2001MAY17	93	115	forward 3	TM	Transmembrane
199	LI:411441.8:2001MAY17	116	497	forward 3	TM	Non-Cytosolic
200	LI:758193.3:2001MAY17		. 9	forward 1	TM	Non-Cytosolic
200	LI:758193.3:2001MAY17	10	32	forward 1	TM	Transmembrane
200	LI:758193.3:2001MAY17	33	52	forward 1	TM	Cytosolic
200	LI:758193.3:2001MAY17	53	75	forward 1	TM	Transmembrane
200	LI:758193.3:2001MAY17	76	99	forward 1	TM	Non-Cytosolic
200	LI:758193.3:2001MAY17	100	122	forward 1	TM	Transmembrane
200	LI:758193.3:2001MAY17	123	214	forward 1	TM	Cytosolic
200	LI:758193.3:2001MAY17	215	237	forward 1	TM	Transmembrane
200	LI:758193.3:2001MAY17	238	282	forward 1	TM	Non-Cytosolic
200	LI:758193.3:2001MAY17	283	305	forward 1	TM	Transmembrane
200	LI:758193.3:2001MAY17	306	311	forward 1	TM	Cytosolic
200	LI:758193.3:2001MAY17	312	334	forward 1	TM	Transmembrane
200	LI:758193.3:2001MAY17	335	343	forward 1	TM	Non-Cytosolic
200	LI:758193.3:2001MAY17	344	366	forward 1	TM	Transmembrane
200	LI:758193.3:2001MAY17	367	415	forward 1	TM	Cytosolic
200	LI:758193.3:2001MAY17	416	435	forward 1	TM	Transmembrane
200	LI:758193.3:2001MAY17	436	476	forward 1	TM	Non-Cytosolic
200	LI:758193.3:2001MAY17	477	499	forward 1	TM	Transmembrane
200	LI:758193.3:2001MAY17	500		forward 1	TM	Cytosolic
200	LI:758193.3:2001MAY17	553	575	forward 1	TM	Transmembrane
200	LI:758193.3:2001MAY17	576	584	forward 1	TM	Non-Cytosolic
200	LI:758193.3:2001MAY17	585	607	forward 1	TM	Transmembrane
200	LI:758193.3:2001MAY17	608	664		TM	Cytosolic
200	LI:758193.3:2001MAY17	1	20	forward 2		Cytosolic
200	LI:758193.3:2001MAY17	21	38	forward 2		Transmembrane
200	LI:758193.3:2001MAY17	39	64	forward 2	TM	Non-Cytosolic

		TABI	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
200	LI:758193.3:2001MAY17	65	87	forward 2	TM	Transmembrane
200	LI:758193.3:2001MAY17	88	211	forward 2	TM	Cytosolic
200	LI:758193.3:2001MAY17	212	234	forward 2	TM	Transmembrane
200	LI:758193.3:2001MAY17	235	243	forward 2	TM	Non-Cytosolic
200	LI:758193.3:2001MAY17	244	261	forward 2	TM	Transmembrane
200	LI:758193.3:2001MAY17	262	277	forward 2	TM	Cytosolic
200	LI:758193.3:2001MAY17	278	300	forward 2	TM	Transmembrane
200	LI:758193.3:2001MAY17	301	476	forward 2	TM	Non-Cytosolic
200	LI:758193.3:2001MAY17	477	499	forward 2	TM	Transmembrane
200	LI:758193.3:2001MAY17	500	552	forward 2	TM.	Cytosolic
200	LI:758193.3:2001MAY17	553	575	forward 2	TM	Transmembrane
200	LI:758193.3:2001MAY17	576	584	forward 2	TM	Non-Cytosolic
200	LI:758193.3:2001MAY17	585	607	forward 2	TM	Transmembrane
200	LI:758193.3:2001MAY17	608	664	forward 2	TM	Cytosolic
200	LI:758193.3:2001MAY17	1	19	forward 3	TM	Cytosolic
200	LI:758193.3:2001MAY17	20	42	forward 3	TM	Transmembrane
200	LI:758193.3:2001MAY17	43	56	forward 3	TM	Non-Cytosolic
200	LI:758193.3:2001MAY17	57	79	forward 3	TM	Transmembrane
200	LI:758193.3:2001MAY17	80	115	forward 3	TM	Cytosolic
200	LI:758193.3:2001MAY17	116	138	forward 3	TM	Transmembrane
200	LI:758193.3:2001MAY17	139	213	forward 3	TM	Non-Cytosolic
200	LI:758193.3:2001MAY17	214	236	forward 3	TM	Transmembrane
200	LI:758193.3:2001MAY17	237		forward 3	TM	Cytosolic
200	LI:758193.3:2001MAY17	279	301	forward 3	TM	Transmembrane
200	LI:758193.3:2001MAY17	302	360	forward 3	TM	Non-Cytosolic
200	LI:758193.3:2001MAY17	361	383	forward 3	TM	Transmembrane
200	LI:758193.3:2001MAY17	384	475	forward 3	TM	Cytosolic
200	LI:758193.3:2001MAY17	. 476	498	forward 3	TM	Transmembrane
200	LI:758193.3:2001MAY17	499	517	forward 3	TM	Non-Cytosolic
200	LI:758193.3:2001MAY17	518	540	forward 3	TM	Transmembrane
200	LI:758193.3:2001MAY17	541	664	forward 3	TM	Cytosolic
201	LI:1028562.3:2001MAY17	1	6	forward 2	TM	Cytosolic
201	LI:1028562.3:2001MAY17	7	24	forward 2	TM	Transmembrane
201	LI:1028562.3:2001MAY17	25	43	forward 2	TM	Non-Cytosolic
201	LI:1028562.3:2001MAY17	44	66	forward 2	TM	Transmembrane
201	LI:1028562.3:2001MAY17	67	69	forward 2	TM	Cytosolic
202	LI:104650.7:2001MAY17	1	6	forward 3	TM	Cytosolic
202	LI:104650.7:2001MAY17	7	29	forward 3	TM	Transmembrane
202	LI:104650.7:2001MAY17	30	38	forward 3	TM	Non-Cytosolic
202	LI:104650.7:2001MAY17	39	61	forward 3	TM	Transmembrane
202	LI:104650.7:2001MAY17	62	72	forward 3	TM	Cytosolic
202	LI:104650.7:2001MAY17	73	95	forward 3	TM	Transmembrane
202	LI:104650.7:2001MAY17	96	265	forward 3	TM	Non-Cytosolic
203	LI:1094557.4:2001MAY17	1	57	forward 1	TM	Non-Cytosolic
203	LI:1094557.4:2001MAY17	58	80	forward 1	TM	Transmembrane
203	LI:1094557.4:2001MAY17	81	311	forward 1	TM	Cytosolic
203	LI:1094557.4:2001MAY17	1	90	forward 3	TM	Cytosolic
203	LI:1094557.4:2001MAY17	91	113	forward 3	TM	Transmembrane
203	LI:1094557.4:2001MAY17	114	127	forward 3	TM	Non-Cytosolic
203	LI:1094557.4:2001MAY17	128	147	forward 3	TM	Transmembrane
203	LI:1094557.4:2001MAY17	148	310	forward 3	TM	Cytosolic
204	LI:1143528.4:2001MAY17	1	302	forward 1	TM	Non-Cytosolic
204	LI:1143528.4:2001MAY17	303	325	forward 1	TM	Transmembrane
204	LI:1143528.4:2001MAY17	326	331	forward 1	TM	Cytosolic

TABLE 2

		IABI	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
204	LI:1143528.4:2001MAY17	1	298	forward 3	TM	Non-Cytosolic
204	LI:1143528.4:2001MAY17	299	321	forward 3	TM	Transmembrane
204	LI:1143528.4:2001MAY17	322	330	forward 3	TM	Cytosolic
205	LI:1172210.7:2001MAY17	1	582	forward 1	TM	Non-Cytosolic
205	LI:1172210.7:2001MAY17	583	600	forward 1	TM	Transmembrane
205	LI:1172210.7:2001MAY17	601	601	forward 1	TM	Cytosolic
206	LI:1178659.14:2001MAY17	1	694	forward 1	TM	Non-Cytosolic
206	LI:1178659.14:2001MAY17	695	717	forward 1	TM	Transmembrane
206	LI:1178659.14:2001MAY17	718	779	forward 1	TM	Cytosolic
206	LI:1178659.14:2001MAY17	780	802	forward 1	TM	Transmembrane
206	LI:1178659.14:2001MAY17	803	811	forward 1	TM	Non-Cytosolic
206	LI:1178659.14:2001MAY17	812	834	forward 1	TM	Transmembrane
206	LI:1178659.14:2001MAY17	835	835	forward 1	TM	Cytosolic
206	LI:1178659.14:2001MAY17	1	233	forward 2	TM	Cytosolic
206	LI:1178659.14:2001MAY17	234	256	forward 2	TM	Transmembrane
206	LI:1178659.14:2001MAY17	257	347	forward 2	TM	Non-Cytosolic
206	LI:1178659.14:2001MAY17	348	370	forward 2	TM	Transmembrane
206	LI:1178659.14:2001MAY17	371	689	forward 2	TM	Cytosolic
206	LI:1178659.14:2001MAY17	690	712	forward 2	TM	Transmembrane
206	LI:1178659.14:2001MAY17	713	808	forward 2	TM	Non-Cytosolic
206	LI:1178659.14:2001MAY17	809	831	forward 2	TM	Transmembrane
206	LI:1178659.14:2001MAY17	832	835	forward 2	TM	Cytosolic
206	LI:1178659.14:2001MAY17	1	57	forward 3	TM	Cytosolic
206	LI:1178659.14:2001MAY17	58	80	forward 3	TM	Transmembrane
206	LI:1178659.14:2001MAY17	81	235	forward 3	TM	Non-Cytosolic
206		236		forward 3	TM	Transmembrane
206	LI:1178659.14:2001MAY17	259	316	forward 3	TM	Cytosolic
206	LI:1178659.14:2001MAY17	317	339	forward 3	- TM	Transmembrane .
206	LI:1178659.14:2001MAY17	340	370	forward 3	TM	Non-Cytosolic
206	LI:1178659.14:2001MAY17	371	393	forward 3	TM	Transmembrane
206	LI:1178659.14:2001MAY17	394	457	forward 3	TM	Cytosolic
206	LI:1178659.14:2001MAY17	458	477	forward 3	TM	Transmembrane
206	LI:1178659.14:2001MAY17	478	779	forward 3	TM	Non-Cytosolic
206	LI:1178659.14:2001MAY17	780	802	forward 3	TM	Transmembrane
206	LI:1178659.14:2001MAY17	803	808	forward 3	TM	Cytosolic
206	LI:1178659.14:2001MAY17	809	831	forward 3	TM	Transmembrane
206	LI:1178659.14:2001MAY17	832	835	forward 3	TM	Non-Cytosolic
207	LI:1983726.3:2001MAY17	1	95	forward 3	TM	Cytosolic
207	LI:1983726.3:2001MAY17	96	118	forward 3	TM	Transmembrane
207	LI:1983726.3:2001MAY17	119	151	forward 3	TM	Non-Cytosolic
207	LI:1983726.3:2001MAY17	152	174	forward 3	TM	Transmembrane
207	LI:1983726.3:2001MAY17	175	186	forward 3	TM	Cytosolic
207	LI:1983726.3:2001MAY17	187	206	forward 3	TM	Transmembrane
207	LI:1983726.3:2001MAY17	207	211	forward 3	TM	Non-Cytosolic
207	LI:1983726.3:2001MAY17	212	231	forward 3	TM	Transmembrane
	LI:1983726.3:2001MAY17	232	251	forward 3	TM	Cytosolic
207	LI:1983726.3:2001MAY17	252	274	forward 3	TM	Transmembrane
207		275	285	forward 3	TM	Non-Cytosolic
207	LI:1983726.3:2001MAY17 LI:2051495.3:2001MAY17	2/3	259	forward 1	TM	Non-Cytosolic
208				forward 1		Transmembrane
208	LI:2051495.3:2001MAY17	260	279 291	forward 1	TM TM	Cytosolic
208	LI:2051495.3:2001MAY17	280		forward 1		Transmembrane
208	LI:2051495.3:2001MAY17	292	309		TM	Non-Cytosolic
208	LI:2051495.3:2001MAY17	310	337	forward 1	TM	-
208	LI:2051495.3:2001MAY17	-338	360	forward 1	TM	Transmembrane

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TABLE 2 Stop Domain Type Topology Frame SEQ D NO: Start Template ID Cytosolic 527 TM 208 LI:2051495.3:2001MAY17 361 forward 1 528 550 forward 1 TM Transmembrane 208 LI:2051495.3:2001MAY17 706 Non-Cytosolic 208 551 forward I TM LI:2051495.3:2001MAY17 320 forward 2 TM Non-Cytosolic 208 1 LI:2051495.3:2001MAY17 Transmembrane 208 LI:2051495.3:2001MAY17 321 343 forward 2 TM 208 LI:2051495.3:2001MAY17 344 515 forward 2 TM Cytosolic 208 516 538 forward 2 TM Transmembrane LI:2051495.3:2001MAY17 539 705 forward 2 TM Non-Cytosolic 208 LI:2051495.3:2001MAY17 336 forward 3 TM Non-Cytosolic 208 LI:2051495.3:2001MAY17 1 337 359 forward 3 TM **Transmembrane** 208 LI:2051495.3:2001MAY17 LI:2051495.3:2001MAY17 360 705 forward 3 TM Cytosolic 208 1 320 forward 1 TM Non-Cytosolic 209 LI:2117629.1:2001MAY17 Transmembrane 321 343 forward 1 TM 209 LI:2117629.1:2001MAY17 209 LI:2117629.1:2001MAY17 344 355 forward 1 TM Cytosolic 209 LI:2117629.1:2001MAY17 356 378 forward 1 TM Transmembrane Non-Cytosolic 209 LI:2117629.1:2001MAY17 379 397 forward 1 TM 398 416 TM Transmembrane 209 LI:2117629.1:2001MAY17 forward 1 Cytosolic 424 TM 209 LI:2117629.1:2001MAY17 417 forward 1 Non-Cytosolic TM 210 LI:2118007.3:2001MAY17 1 37 forward 3 38 60 forward 3 TM Transmembrane 210 LI:2118007.3:2001MAY17 TM Cytosolic 210 LI:2118007.3:2001MAY17 61 203 forward 3 Transmembrane 204 226 forward 3 TM 210 LI:2118007.3:2001MAY17 338 TM Non-Cytosolic 227 forward 3 210 LI:2118007.3:2001MAY17 Non-Cytosolic TM 140 211 LI:2118292.9:2001MAY17 1 forward 1 TM Transmembrane 211 LI:2118292.9:2001MAY17 141 163 forward 1 286 forward 1 TM. Cytosolic 211 LI:2118292.9:2001MAY17 164 TM Transmembrane LI:2118292.9:2001MAY17 287 306 forward 1 211 307 344 forward 1 TM Non-Cytosolic 211 LI:2118292.9:2001MAY17 345 367 forward 1 TM Transmembrane 211 LI:2118292.9:2001MAY17 368 520 forward 1 TM Cytosolic 211 LI:2118292.9:2001MAY17 Non-Cytosolic 211 LI:2118292.9:2001MAY17 1 299 forward 2 TM Transmembrane 211 LI:2118292.9:2001MAY17 300 319 forward 2 TM 320 418 forward 2 TM Cytosolic 211 LI:2118292.9:2001MAY17 Transmembrane 419 441 forward 2 TM 211 LI:2118292.9:2001MAY17 442 478 forward 2 TM Non-Cytosolic 211 LI:2118292.9:2001MAY17 Transmembrane 479 501 forward 2 TM 211 LI:2118292.9:2001MAY17 Cytosolic 502 520 211 LI:2118292.9:2001MAY17 forward 2 TM Cytosolic 1 292 forward 3 TM 211 LI:2118292.9:2001MAY17 293 312 forward 3 TM Transmembrane LI:2118292.9:2001MAY17 211 Non-Cytosolic 313 346 forward 3 TM 211 LI:2118292.9:2001MAY17 347 Transmembrane 369 forward 3 TM 211 LI:2118292.9:2001MAY17 370 Cytosolic TM 211 LI:2118292.9:2001MAY17 452 forward 3 Transmembrane 453 475 forward 3 TM 211 LI:2118292.9:2001MAY17 476 489 forward 3 TM Non-Cytosolic 211 LI:2118292.9:2001MAY17 490 512 forward 3 TM Transmembrane 211 LI:2118292.9:2001MAY17 513 519 forward 3 TM Cytosolic 211 LI:2118292.9:2001MAY17 1 TM Non-Cytosolic 212 LI:2118733.7:2001MAY17 48 forward 1 49 71 forward 1 TM Transmembrane 212 LI:2118733.7:2001MAY17 212 LI:2118733.7:2001MAY17 72 195 forward 1 TM Cytosolic 196 212 LI:2118733.7:2001MAY17 218 forward 1 TM Transmembrane 219 Non-Cytosolic 222 forward 1 TM 212 LI:2118733.7:2001MAY17 223 Transmembrane 212 LI:2118733.7:2001MAY17 242 forward 1 TM 243 292 Cytosolic 212 LI:2118733.7:2001MAY17 forward 1 TM 1 35 forward 2 TM Cytosolic 212 LI:2118733.7:2001MAY17

#### TABLE 2 SEQ D NO: Start Stop Frame Domain Type Template ID Topology LI:2118733.7:2001MAY17 36 58 212 forward 2 TM Transmembrane 59 212 LI:2118733.7:2001MAY17 110 forward 2 TM Non-Cytosolic 133 forward 2 212 LI:2118733.7:2001MAY17 111 TM Transmembrane 212 LI:2118733.7:2001MAY17 134 153 forward 2 TM Cytosolic 154 176 forward 2 212 LI:2118733.7:2001MAY17 TM Transmembrane 195 212 LI:2118733.7:2001MAY17 177 forward 2 TM Non-Cytosolic 212 LI:2118733.7:2001MAY17 196 218 forward/2 TM Transmembrane 212 LI:2118733.7:2001MAY17 219 291 forward 2 TM Cytosolic 212 LI:2118733.7:2001MAY17 108 forward 3 TM Cytosolic 1 212 LI:2118733.7:2001MAY17 109 131 forward 3 TM Transmembrane 212 LI:2118733.7:2001MAY17 132 153 forward 3 TM Non-Cytosolic 212 LI:2118733.7:2001MAY17 154 176 forward 3 TM Transmembrane 177 199 forward 3 212 LI:2118733.7:2001MAY17 TM Cytosolic 222 212 LI:2118733.7:2001MAY17 200 forward 3 TM Transmembrane 249 212 LI:2118733.7:2001MAY17 223 forward 3 TM Non-Cytosolic 250 272 212 LI:2118733.7:2001MAY17 forward 3 TM Transmembrane 212 273 291 forward 3 TM LI:2118733.7:2001MAY17 Cytosolic 213 615 TM LI:212702.3:2001MAY17 1 forward 1 Non-Cytosolic 213 638 LI:212702.3:2001MAY17 616 forward 1 TM Transmembrane 213 LI:212702.3:2001MAY17 639 854 forward 1 TM Cytosolic 213 855 874 LI:212702.3:2001MAY17 forward 1 TM Transmembrane 213 LI:212702.3:2001MAY17 875 902 forward 1 TM Non-Cytosolic 213 903 925 LI:212702.3:2001MAY17 forward 1 TM Transmembrane 926 995 213 LI:212702.3:2001MAY17 forward 1 TM Cytosolic 996 1018 213 LI:212702.3:2001MAY17 forward 1 TM Transmembrane 213 LI:212702.3:2001MAY17 1019 1410 forward 1 TM Non-Cytosolic 213 LI:212702.3:2001MAY17 1 19 forward 2 TM Non-Cytosolic 213 LI:212702.3:2001MAY17 20 42 forward 2 ·TM Transmembrane 213 LI:212702.3:2001MAY17 43 369 forward 2 TM Cytosolic 213 LI:212702.3:2001MAY17 370 392 forward 2 TM Transmembrane 213 -LI:212702.3:2001MAY17 393 547 forward 2 TM Non-Cytosolic 213 LI:212702.3:2001MAY17 548 570 forward 2 TM Transmembrane 213 571 582 forward 2 LI:212702.3:2001MAY17 TM Cytosolic 213 LI:212702.3:2001MAY17 583· 605 forward 2 TM Transmembrane 213 614 forward 2 LI:212702.3:2001MAY17 606 TM Non-Cytosolic 213 637 LI:212702.3:2001MAY17 615 forward 2 TM Transmembrane 213 835 LI:212702.3:2001MAY17 638 forward 2 TM Cytosolic 213 LI:212702.3:2001MAY17 836 855 forward 2 TM Transmembrane 213 LI:212702.3:2001MAY17 856 1410 forward 2 TM Non-Cytosolic 213 LI:212702.3:2001MAY17 19 forward 3 TM 1 Cytosolic 213 LI:212702.3:2001MAY17 20 42 TM forward 3 Transmembrane 43 1409 213 LI:212702.3:2001MAY17 forward 3 TM Non-Cytosolic 214 LI:2207871.10:2001MAY17 1 74 forward 2 TM Cytosolic 75 97 214 LI:2207871.10:2001MAY17 forward 2 TM Transmembrane 214 LI:2207871.10:2001MAY17 98 101 forward 2 TM Non-Cytosolic 214 102 121 forward 2 LI:2207871.10:2001MAY17 TM Transmembrane 214 LI:2207871.10:2001MAY17 122 132 forward 2 TM Cytosolic 214 LI:2207871.10:2001MAY17 133 155 forward 2 TM Transmembrane 214 LI:2207871.10:2001MAY17 156 169 forward 2 TM Non-Cytosolic 170 214 LI:2207871.10:2001MAY17 187 forward 2 TM Transmembrane 214 LI:2207871.10:2001MAY17 188 193 forward 2 TM Cytosolic 214 LI:2207871.10:2001MAY17 194 216 forward 2 TM Transmembrane 214 LI:2207871.10:2001MAY17 217 629 forward 2 TM Non-Cytosolic

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forward 2

TM

Cytosolic

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LI:2207876.5:2001MAY17

		TAB	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
216	LI:2208743.1:2001MAY17	1	115	forward 1	TM	Non-Cytosolic
216	LI:2208743.1:2001MAY17	116	138	forward 1	TM	Transmembrane
216	LI:2208743.1:2001MAY17	139	226	forward 1	TM	Cytosolic
216	LI:2208743.1:2001MAY17	227	249	forward I	TM	Transmembrane
216	LI:2208743.1:2001MAY17	250	288	forward 1	TM	Non-Cytosolic
217	LI:2208744.1:2001MAY17	1	12	forward 1	TM	Cytosolic
217	LI:2208744.1:2001MAY17	13	35	forward 1	TM	Transmembrane
217	LI:2208744.1:2001MAY17	36	538	forward 1	TM	Non-Cytosolic
218	LI:230905.3:2001MAY17	1	252	forward 2	TM	Non-Cytosolic
218	LI:230905.3:2001MAY17	253	275	forward 2	TM	Transmembrane
218	LI:230905.3:2001MAY17	276	290	forward 2	TM	Cytosolic
218	LI:230905.3:2001MAY17	291	313	forward 2	TM	Transmembrane
218	LI:230905.3:2001MAY17	314	327	forward 2	TM	Non-Cytosolic
218	LI:230905.3:2001MAY17	328	350	forward 2	TM	Transmembrane
218	LI:230905.3:2001MAY17	351	373	forward 2	TM	Cytosolic
218	LI:230905.3:2001MAY17	1	4	forward 3	TM	Cytosolic
218	LI:230905.3:2001MAY17	5	27	forward 3	TM	Transmembrane
218	LI:230905.3:2001MAY17	28	31	forward 3	TM	Non-Cytosolic
218	LI:230905.3:2001MAY17	32	54	forward 3	TM	Transmembrane
218	LI:230905.3:2001MAY17	55	248	forward 3	TM	Cytosolic
218	LI:230905.3:2001MAY17	249	271	forward 3	TM	Transmembrane
218	LI:230905.3:2001MAY17	272	285	forward 3	TM	Non-Cytosolic
218	LI:230905.3:2001MAY17	286	308	forward 3	TM	Transmembrane
218	LI:230905.3:2001MAY17	309	372	forward 3	TM	Cytosolic
219	LI:235233.95:2001MAY17	1	19	forward 1	TM	Cytosolic
219	LI:235233.95:2001MAY17	20	42	forward 1	TM	Transmembrane
219	LI:235233.95:2001MAY17	43	307	forward 1	TM	Non-Cytosolic
220	LI:235359.24:2001MAY17	1	149	forward 3	TM	Cytosolic
220	LI:235359.24:2001MAY17	150	172	forward 3	TM	Transmembrane
220	LI:235359.24:2001MAY17	173	186	forward 3	TM	Non-Cytosolic
220	LI:235359.24:2001MAY17	187	206	forward 3	TM	Transmembrane
220	LI:235359.24:2001MAY17	207	335	forward 3	TM	Cytosolic
221	LI:238365.6:2001MAY17	1	437	forward 1	TM	Non-Cytosolic
221	LI:238365.6:2001MAY17	438	460	forward 1	TM	Transmembrane
221	LI:238365.6:2001MAY17	461	465	forward 1	TM	Cytosolic
222	LI:260259.23:2001MAY17	1	57	forward 1	· TM	Cytosolic
222	LI:260259.23:2001MAY17	1	57	forward 2	TM	Cytosolic
222	LI:260259.23:2001MAY17	1	56	forward 3	TM	Cytosolic
223	LI:321069.2:2001MAY17	1	181	forward 1	TM	Non-Cytosolic
223	LI:321069.2:2001MAY17	182	204	forward 1	TM	Transmembrane
223	LI:321069.2:2001MAY17	205	449	forward 1	TM	Cytosolic
223	LI:321069.2:2001MAY17	450	469	forward 1	TM	Transmembrane
223	LI:321069.2:2001MAY17	470	478	forward 1	TM	Non-Cytosolic
223	LI:321069.2:2001MAY17	479	501	forward 1	TM	Transmembrane
223	LI:321069.2:2001MAY17	502	507	forward 1	TM	Cytosolic
223	LI:321069.2:2001MAY17	508	530	forward 1	TM	Transmembrane
223	LI:321069.2:2001MAY17	531	631	forward 1	TM	Non-Cytosolic
223	LI:321069.2:2001MAY17	632	654	forward 1	TM	Transmembrane
223	LI:321069.2:2001MAY17	655	666	forward 1	TM	Cytosolic
223	LI:321069.2:2001MAY17	667	689	forward 1	TM	Transmembrane
223	LI:321069.2:2001MAY17	690	693	forward 1	TM	Non-Cytosolic
223	LI:321069.2:2001MAY17	694	713	forward 1 forward 1	TM	Transmembrane Cytosolic
223 223	LI:321069.2:2001MAY17 LI:321069.2:2001MAY17	714 1072	1071 1094	forward 1	TM TM	Transmembrane
223	L1.321003.2.2001MA 1 17	10/2		ioi watu I	I 1AI	Transmoniorane

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
223	LI:321069.2:2001MAY17	1095	1103	forward 1	TM	Non-Cytosolic
223	LI:321069.2:2001MAY17	1104	1123	forward 1	TM	Transmembrane
223	LI:321069.2:2001MAY17	1124	1129	forward 1	TM	Cytosolic
223	LI:321069.2:2001MAY17	1130	1152	forward 1	TM	Transmembrane
223	LI:321069.2:2001MAY17	1153	1344	forward 1	TM	Non-Cytosolic
223	LI:321069.2:2001MAY17	1	630	forward 2	TM	Non-Cytosolic
223	LI:321069.2:2001MAY17	631	653	forward 2	TM	Transmembrane
223	LI:321069.2:2001MAY17	654	665	forward 2	TM	Cytosolic
223	LI:321069.2:2001MAY17	666	688	forward 2	TM	Transmembrane
223	LI:321069.2:2001MAY17	689	702	forward 2	TM	Non-Cytosolic
223	LI:321069.2:2001MAY17	703	725	forward 2	TM	Transmembrane
223	LI:321069.2:2001MAY17	726	886	forward 2	TM	Cytosolic
223	LI:321069.2:2001MAY17	887	909	forward 2	TM	Transmembrane
223	LI:321069.2:2001MAY17	910	1343	forward 2	TM	Non-Cytosolic
223	LI:321069.2:2001MAY17	1	634	forward 3	TM	Non-Cytosolic
223	LI:321069.2:2001MAY17	635	653	forward 3	TM	Transmembrane
223	LI:321069.2:2001MAY17	654	664	forward 3	TM	Cytosolic
223	LI:321069.2:2001MAY17	665	687	forward 3	TM	Transmembrane
223	LI:321069.2:2001MAY17	688	806	forward 3	TM	Non-Cytosolic
223	LI:321069.2:2001MAY17	807	829	forward 3	TM	Transmembrane
223	LI:321069.2:2001MAY17	830	1078	forward 3	TM	Cytosolic
223	LI:321069.2:2001MAY17	1079	1101	forward 3	TM	Transmembrane
223	LI:321069.2:2001MAY17	1102	1127	forward 3	TM	Non-Cytosolic
223	LI:321069.2:2001MAY17	1102	1150	forward 3	TM	Transmembrane
223	LI:321069.2:2001MAY17	1151	1343	forward 3	TM	Cytosolic
		1131	480	forward 1	TM	Non-Cytosolic
224		481	503	forward 1	TM	Transmembrane
224	LI:331499.8:2001MAY17 LI:331499.8:2001MAY17	504	564	forward 1	TM	Cytosolic
		565	584	forward 1	TM	Transmembrane
224	LI:331499.8:2001MAY17	585	593	forward 1	TM	Non-Cytosolic
224	LI:331499.8:2001MAY17	594	613	forward 1	TM ·	Transmembrane
224	LI:331499.8:2001MAY17	614	614	forward 1	TM	Cytosolic
224	LI:331499.8:2001MAY17		592	forward 3	TM	Non-Cytosolic
224	LI:331499.8:2001MAY17	1		forward 3	TM	Transmembrane
224	LI:331499.8:2001MAY17	593	612	forward 3	TM	
224	LI:331499.8:2001MAY17	613	613			Cytosolic
225	LI:332176.8:2001MAY17	1	124	forward 3	TM	Non-Cytosolic
225	LI:332176.8:2001MAY17	125	147	forward 3	TM	Transmembrane
225	LI:332176.8:2001MAY17	148	238	forward 3	TM	Cytosolic
225	LI:332176.8:2001MAY17	239	261	forward 3	TM	Transmembrane
225	LI:332176.8:2001MAY17	262	367	forward 3	TM	Non-Cytosolic
225	LI:332176.8:2001MAY17	368	390	forward 3	TM	Transmembrane
225	LI:332176.8:2001MAY17	391	457	forward 3	TM	Cytosolic
226	LI:333952.7:2001MAY17	1	68	forward 1	TM	Cytosolic
226	LI:333952.7:2001MAY17	69	91	forward 1	TM	Transmembrane
226	LI:333952.7:2001MAY17	92	105	forward 1	TM	Non-Cytosolic
226	LI:333952.7:2001MAY17	106	128	forward 1	TM	Transmembrane
226	LI:333952.7:2001MAY17	129	134	forward 1	TM	Cytosolic
226	LI:333952.7:2001MAY17	135	157	. forward I	TM	Transmembrane
226	LI:333952.7:2001MAY17	158	352	forward 1	TM	Non-Cytosolic
227	LI:338428.2:2001MAY17	1	71	forward 3	TM	Non-Cytosolic
227	LI:338428.2:2001MAY17	72	94	forward 3	TM	Transmembrane
227	LI:338428.2:2001MAY17	95	127	forward 3	TM	Cytosolic
228	LI:343869.2:2001MAY17	1	938	forward 1	TM	Non-Cytosolic
228	LI:343869.2:2001MAY17	939	961	forward 1	TM	Transmembrane

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
228	LI:343869.2:2001MAY17	962	967	forward 1	TM	Cytosolic
228	LI:343869.2:2001MAY17	968	990	forward 1	TM	Transmembrane
228	LI:343869.2:2001MAY17	991	1154	forward 1	TM	Non-Cytosolic
228	LI:343869.2:2001MAY17	1155	1172	forward 1	TM	Transmembrane
228	LI:343869.2:2001MAY17	1173	1183	forward 1	TM	Cytosolic
228	LI:343869.2:2001MAY17	1184	1206	forward 1	TM	Transmembrane
228	LI:343869.2:2001MAY17	1207	1237	forward 1	TM	Non-Cytosolic
228	LI:343869.2:2001MAY17	1238	1260	forward 1	TM	Transmembrane
228	LI:343869.2:2001MAY17	1261	1334	forward 1	TM	Cytosolic
228	LI:343869.2:2001MAY17	1335	1354	forward 1	TM	Transmembrane
228	LI:343869.2:2001MAY17	1355	1363	forward 1	TM	Non-Cytosolic
228	LI:343869.2:2001MAY17	1364	1383	forward 1	TM	Transmembrane
228	LI:343869.2:2001MAY17	1384	1651	forward 1	TM	Cytosolic
228	LI:343869.2:2001MAY17	1	957	forward 3	TM	Non-Cytosolic
228	LI:343869.2:2001MAY17	958	980	forward 3	TM	Transmembrane
228	LI:343869.2:2001MAY17	981	1126	forward 3	TM	Cytosolic
228	LI:343869.2:2001MAY17	1127	1149	forward 3	TM	Transmembrane
228	LI:343869.2:2001MAY17	1150	1183	forward 3	TM	Non-Cytosolic
228	LI:343869.2:2001MAY17	1184	1206	forward 3	TM	Transmembrane
228	LI:343869.2:2001MAY17	1207	1236	forward 3	TM	Cytosolic
228	LI:343869.2:2001MAY17	1237	1259	forward 3	TM	Transmembrane
228	LI:343869.2:2001MAY17	1260	1650	forward 3	TM	Non-Cytosolic
229	LI:363532.1:2001MAY17	1	77	forward 3	TM	Non-Cytosolic
229	LI:363532.1:2001MAY17	78	95	forward 3	TM	Transmembrane
229	LI:363532.1:2001MAY17	96	189	forward 3	TM	Cytosolic
229	LI:363532.1:2001MAY17	190	209	forward 3	TM	Transmembrane
229	LI:363532.1:2001MAY17	210	234	forward 3	TM	Non-Cytosolic
229	LI:363532.1:2001MAY17	235	257	forward 3	TM	Transmembrane '
229 `	LI:363532.1:2001MAY17	258	266	forward 3	TM	Cytosolic
230	LI:398153.37:2001MAY17	1	139	forward 2	TM	Cytosolic
230	LI:398153.37:2001MAY17	140	162	forward 2	TM	Transmembrane
230	LI:398153.37:2001MAY17	163	287	forward 2	TM	Non-Cytosolic
231	LI:416650.1:2001MAY17	1	26	forward 1	TM	Cytosolic
231	LI:416650.1:2001MAY17	27	49	forward 1	TM	Transmembrane
231	LI:416650.1:2001MAY17	50	231	forward 1	TM	Non-Cytosolic
231	LI:416650.1:2001MAY17	1	30	forward 3	TM	Cytosolic
231	LI:416650.1:2001MAY17	31	53	forward 3	TM	Transmembrane
231	LI:416650.1:2001MAY17	54	230	forward 3	TM	Non-Cytosolic
232	LI:444767.32:2001MAY17	1	24	forward 1	TM	Non-Cytosolic
232	LI:444767.32:2001MAY17	25	47	forward 1	TM	Transmembrane
232	LI:444767.32:2001MAY17	48	192	forward 1	TM	Cytosolic
232	LI:444767.32:2001MAY17	193	215	forward 1	TM	Transmembrane
232	LI:444767.32:2001MAY17	216	279	forward 1	TM	Non-Cytosolic
232	LI:444767.32:2001MAY17	280	302	forward 1	TM	Transmembrane
232	LI:444767.32:2001MAY17	303	440	forward 1	TM	Cytosolic
232	LI:444767.32:2001MAY17	441	463	forward 1	TM	Transmembrane
232	LI:444767.32:2001MAY17	464	596	forward 1	TM	Non-Cytosolic
232	LI:444767.32:2001MAY17	1	12	forward 2	TM	Cytosolic
232	LI:444767.32:2001MAY17	13	32	forward 2	TM	Transmembrane
232	LI:444767.32:2001MAY17	33	519	forward 2	TM	Non-Cytosolic
232	LI:444767.32:2001MAY17	520	542	forward 2	TM	Transmembrane
232	LI:444767.32:2001MAY17	543	595	forward 2	TM	Cytosolic
232	LI:444767.32:2001MAY17	1	12	forward 3	TM	Cytosolic
232	LI:444767.32:2001MAY17	13	35	forward 3	TM	Transmembrane
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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
232	LI:444767.32:2001MAY17	36	595	forward 3	TM	Non-Cytosolic
233	LI:759073.1:2001MAY17	1	9	forward 1	TM	Non-Cytosolic
233	LI:759073.1:2001MAY17	10	32	forward 1	TM	Transmembrane
233	LI:759073.1:2001MAY17	33	210	forward 1	TM	Cytosolic
233	LI:759073.1:2001MAY17	211	233	forward l	TM	Transmembrane
233	LI:759073.1:2001MAY17	234	252	forward 1	TM	Non-Cytosolic
233	LI:759073.1:2001MAY17	253	270	forward I	TM	Transmembrane
233	LI:759073.1:2001MAY17	271	441	forward 1	TM	Cytosolic
233	LI:759073.1:2001MAY17	442	464	forward 1	TM	Transmembrane
233	LI:759073.1:2001MAY17	465	574	forward 1	TM	Non-Cytosolic
233	LI:759073.1:2001MAY17	1	83	forward 2	TM	Cytosolic
233	LI:759073.1:2001MAY17	84	106	forward 2	TM	Transmembrane
233	LI:759073.1:2001MAY17	107	129	forward 2	TM	Non-Cytosolic
233	LI:759073.1:2001MAY17	130	152	forward 2	TM	Transmembrane
233	LI:759073.1:2001MAY17	153	156	forward 2	TM	Cytosolic
233	LI:759073.1:2001MAY17	157	179	forward 2	TM	Transmembrane
233	LI:759073.1:2001MAY17	180	393	forward 2	TM	Non-Cytosolic
233	LI:759073.1:2001MAY17	. 394	416	forward 2	TM	Transmembrane
233	LI:759073.1:2001MAY17	417	427	forward 2	TM	Cytosolic
233	LI:759073.1:2001MAY17	428	450	forward 2	TM	Transmembrane
233	LI:759073.1:2001MAY17	451	574	forward 2	TM	Non-Cytosolic
233	LI:759073.1:2001MAY17	1	79	forward 3	TM	Cytosolic
233	LI:759073.1:2001MAY17	80	102	forward 3	TM	Transmembrane
233	LI:759073.1:2001MAY17	103	116	forward 3	TM	Non-Cytosolic
233	LI:759073.1:2001MAY17	117	139	forward 3	TM	Transmembrane
	LI:759073.1:2001MAY17	140	150	forward 3	TM	Cytosolic
233	LI:759073.1:2001MAY17	151	170	forward 3	TM	Transmembrane
233	LI:759073.1:2001MAY17	171	573	forward 3'	TM	Non-Cytosolic
234	LI:759902.4:2001MAY17	- 1	3	forward 1	TM	Non-Cytosolic
234	LI:759902.4:2001MAY17	4	26	forward 1	TM	Transmembrane
234	LI:759902.4:2001MAY17	27	100	forward 1	TM	Cytosolic
235	LI:762268.1:2001MAY17	1	49	forward 1	TM	Cytosolic
235	LI:762268.1:2001MAY17	50	72	forward 1	TM	Transmembrane
235	LI:762268.1:2001MAY17	73	86	forward 1	TM	Non-Cytosolic
235	LI:762268.1:2001MAY17	87	109	forward 1	TM	Transmembrane
235	LI:762268.1:2001MAY17	110	136	forward 1	TM	Cytosolic ·
235	LI:762268.1:2001MAY17	137	159	forward 1	TM	Transmembrane
235	LI:762268.1:2001MAY17	160	594	forward l	TM ·	Non-Cytosolic
235	LI:762268.1:2001MAY17	1	16	forward 2	TM	Cytosolic
235	LI:762268.1:2001MAY17	17	39	forward 2	TM	Transmembrane
235	LI:762268.1:2001MAY17	40	48	forward 2	TM	Non-Cytosolic
235	LI:762268.1:2001MAY17	49	71	forward 2	TM	Transmembrane
235	LI:762268.1:2001MAY17	72	91	forward 2	TM	Cytosolic
235	LI:762268.1:2001MAY17	92	111	forward 2	TM	Transmembrane
235	LI:762268.1:2001MAY17	112	125	forward 2	TM	Non-Cytosolic
235	LI:762268.1:2001MAY17	126	148	forward 2	TM	Transmembrane
235	LI:762268.1:2001MAY17	149	167	forward 2	TM	Cytosolic
235	LI:762268.1:2001MAY17	168	190	forward 2	TM	Transmembrane
235	LI:762268.1:2001MAY17	191	593	forward 2	TM	Non-Cytosolic
235	LI:762268.1:2001MAY17	1	45	forward 3	TM	Non-Cytosolic
235	LI:762268.1:2001MAY17	46	68	forward 3	TM	Transmembrane
235	LI:762268.1:2001MAY17	69	79	forward 3	TM	Cytosolic
235	LI:762268.1:2001MAY17	80	102	forward 3	TM	Transmembrane
235	LI:762268.1:2001MAY17	103	593	forward 3	TM	Non-Cytosolic
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		TABI	.E 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
236	LI:813699.1:2001MAY17	1	394	forward 2	TM	Cytosolic
236	LI:813699.1:2001MAY17	395	417	forward 2	TM	Transmembrane
236	LI:813699.1:2001MAY17	418	457	forward 2	TM	Non-Cytosolic
237	LI:024142.16:2001MAY17	1	49	forward 1	TM	Non-Cytosolic
237	LI:024142.16:2001MAY17	50	72	forward 1	TM	Transmembrane
237	LI:024142.16:2001MAY17	73	311	forward I	TM	Cytosolic
237	LI:024142.16:2001MAY17	312	334	forward 1	TM	Transmembrane
237	LI:024142.16:2001MAY17	335	348	forward 1	TM	Non-Cytosolic
237	LI:024142.16:2001MAY17	349	371	forward 1	TM	Transmembrane
237	LI:024142.16:2001MAY17	372	377	forward 1	TM	Cytosolic
237	LI:024142.16:2001MAY17	378	400	forward 1	TM	Transmembrane
237	LI:024142.16:2001MAY17	401	1142	forward 1	TM	Non-Cytosolic
237	LI:024142.16:2001MAY17	1	279	forward 2	TM	Cytosolic
237	LI:024142.16:2001MAY17	280	299	forward 2	TM	Transmembrane
237	LI:024142.16:2001MAY17	300	313	forward 2	TM	Non-Cytosolic
237	LI:024142.16:2001MAY17	314	348	forward 2	TM	Transmembrane
237	LI:024142.16:2001MAY17	349	360	forward 2	TM	Cytosolic
237	LI:024142.16:2001MAY17	361	383	forward 2	TM	Transmembrane
237	LI:024142.16:2001MAY17	384	397	forward 2	TM	Non-Cytosolic
237	LI:024142.16:2001MAY17	398	420	forward 2	TM	Transmembrane
237	LI:024142.16:2001MAY17	421	536	forward 2	TM	Cytosolic
237	LI:024142.16:2001MAY17	537	559	forward 2	TM	Transmembrane
237	LI:024142.16:2001MAY17	560	586	forward 2	TM	Non-Cytosolic
237	LI:024142.16:2001MAY17	587	609	forward 2	TM	Transmembrane
237	LI:024142.16:2001MAY17	610	636	forward 2	TM	Cytosolic
237	LI:024142.16:2001MAY17	637	659 -	forward 2	TM	Transmembrane
237	LI:024142.16:2001MAY17	660	1141	forward 2	TM	Non-Cytosolic
237	LI:024142.16:2001MAY17	1 -	323	forward 3	TM	Non-Cytosolic
237	LI:024142.16:2001MAY17	324	346	forward 3	TM	Transmembrane
237	LI:024142.16:2001MAY17	347	352	forward 3	TM	Cytosolic
237	LI:024142.16:2001MAY17	353	375	forward 3	TM	Transmembrane
237	LI:024142.16:2001MAY17	376	394	forward 3	TM	Non-Cytosolic
237	LI:024142.16:2001MAY17	395	414	forward 3	TM	Transmembrane
237	LI:024142.16:2001MAY17	415	570	forward 3	TM	Cytosolic
237	LI:024142.16:2001MAY17	571	593	forward 3	TM	Transmembrane
237	LI:024142.16:2001MAY17	594	1141	forward 3	TM	Non-Cytosolic
238	LI:1018424.4:2001MAY17	1	1194	forward 2	TM	Non-Cytosolic
238	LI:1018424.4:2001MAY17	1195	1217	forward 2	TM	Transmembrane
238	LI:1018424.4:2001MAY17	1218	1327	forward 2	TM	Cytosolic
239	LI:1085250.6:2001MAY17	1	840	forward 1	TM	Non-Cytosolic
239	LI:1085250.6:2001MAY17	841	863	forward 1	TM	Transmembrane
239	LI:1085250.6:2001MAY17	864	929	forward 1	TM	Cytosolic
239	LI:1085250.6:2001MAY17	930	952	forward 1	TM	Transmembrane
239	LI:1085250.6:2001MAY17	953	955	forward 1	TM	Non-Cytosolic
239	LI:1085250.6:2001MAY17	956	978	forward 1	TM	Transmembrane
239	LI:1085250.6:2001MAY17	979	990	forward I	TM	Cytosolic
239	LI:1085250.6:2001MAY17	991	1013	forward 1	TM	Transmembrane
239	LI:1085250.6:2001MAY17	1014	1327	forward 1	TM	Non-Cytosolic
239	LI:1085250.6:2001MAY17	1328	1350	forward 1	TM	Transmembrane
239	LI:1085250.6:2001MAY17	1351	1369	forward 1	TM	Cytosolic
239	LI:1085250.6:2001MAY17	1	59	forward 2	TM	Cytosolic
239	LI:1085250.6:2001MAY17	60	82 515	forward 2	TM	Transmembrane
239	LI:1085250.6:2001MAY17	83	515	forward 2	TM	Non-Cytosolic
239	LI:1085250.6:2001MAY17	516	538	forward 2	TM	Transmembrane

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
239	LI:1085250.6:2001MAY17	539	558	forward 2	TM	Cytosolic
239	LI:1085250.6:2001MAY17	559	578	forward 2	TM	Transmembrane
239	LI:1085250.6:2001MAY17	579	597	forward 2	TM	Non-Cytosolic
239	LI:1085250.6:2001MAY17	598	620	forward 2	TM	Transmembrane
239	LI:1085250.6:2001MAY17	621	803	forward 2	· TM	Cytosolic
239	LI:1085250.6:2001MAY17	804	826	forward 2	TM	Transmembrane
239	LI:1085250.6:2001MAY17	827	835	forward 2	TM	Non-Cytosolic
239	LI:1085250.6:2001MAY17	836	858	forward 2	TM	Transmembrane
239	LI:1085250.6:2001MAY17	859	878	forward 2	TM	Cytosolic
239	LI:1085250.6:2001MAY17	879	901	forward 2	TM	Transmembrane
239	LI:1085250.6:2001MAY17	902	910	forward 2	TM	Non-Cytosolic
239	LI:1085250.6:2001MAY17	911	933	forward 2	TM	Transmembrane
239	LI:1085250.6:2001MAY17	934	986	forward 2	TM	Cytosolic
239	LI:1085250.6:2001MAY17	987	1009	forward 2	TM	Transmembrane
239	LI:1085250.6:2001MAY17	. 1010	1211	forward 2	TM	Non-Cytosolic
239	LI:1085250.6:2001MAY17	1212	1234	forward 2	TM	Transmembrane
239	LI:1085250.6:2001MAY17	1235	1306	forward 2	TM	Cytosolic
239	LI:1085250.6:2001MAY17	1307	1329	forward 2	TM	Transmembrane
239	LI:1085250.6:2001MAY17	1330	1338	forward 2	TM	Non-Cytosolic
239	LI:1085250.6:2001MAY17	1339	1361	forward 2	TM	Transmembrane
239	LI:1085250.6:2001MAY17	1362	1368	forward 2	TM	Cytosolic
239	LI:1085250.6:2001MAY17	1	546	forward 3	TM	Non-Cytosolic
239	LI:1085250.6:2001MAY17	547	569	forward 3	TM	Transmembrane
239	LI:1085250.6:2001MAY17	570	589	forward 3	TM	Cytosolic
239	LI:1085250.6:2001MAY17	590	612	forward 3	TM	Transmembrane
239	LI:1085250.6:2001MAY17	613	911	forward 3	TM	Non-Cytosolic
239	LI:1085250.6:2001MAY17	912	931	forward 3	TM	Transmembrane
239	LI:1085250.6:2001MAY17	932	1203	forward 3	TM	Cytosolic
239	LI:1085250.6:2001MAY17	1204		forward 3	TM	Transmembrane
239	LI:1085250.6:2001MAY17	1227	1240	forward 3	TM	Non-Cytosolic
239	LI:1085250.6:2001MAY17	1241	1260	forward 3	TM	Transmembrane
239	LI:1085250.6:2001MAY17	1261	1319	forward 3	TM	Cytosolic
239	LI:1085250.6:2001MAY17	1320	1342	forward 3	TM	Transmembrane
239	LI:1085250.6:2001MAY17	1343	1368	forward 3	TM	Non-Cytosolic
240	LI:179233.63:2001MAY17	1	173	forward 1	TM	Cytosolic
240	LI:179233.63:2001MAY17	174	196	forward 1	TM	Transmembrane
240	LI:179233.63:2001MAY17	197	210	forward 1	TM	Non-Cytosolic
240	LI:179233.63:2001MAY17	211	233	forward 1	TM	Transmembrane
240	LI:179233.63:2001MAY17	234	347	forward 1	TM	Cytosolic
241	LI:2207125.3:2001MAY17	1	12	forward 1	TM	Cytosolic
241	LI:2207125.3:2001MAY17	13	35	forward 1	TM	Transmembrane
241	LI:2207125.3:2001MAY17	36	204	forward 1	TM	Non-Cytosolic
242	LI:235153.44:2001MAY17	1	753	forward 2	TM	Non-Cytosolic
242	LI:235153.44:2001MAY17	754	776	forward 2	TM	Transmembrane
242	LI:235153.44:2001MAY17	777	1029	forward 2	TM	Cytosolic
243	LI:007101.10:2001MAY17	1	528	forward 3	TM	Non-Cytosolic
243	LI:007101.10:2001MAY17	529	551	forward 3	TM	Transmembrane
243	LI:007101.10:2001MAY17	552	694	forward 3	TM	Cytosolic
244	LI:008541.2:2001MAY17	1	79	forward 2	TM	Cytosolic
244	LI:008541.2:2001MAY17	80	102	forward 2	TM	Transmembrane
244	LI:008541.2:2001MAY17	103	568	forward 2	TM	Non-Cytosolic
245	LI:009658.13:2001MAY17	1	74	forward 1	TM	Cytosolic
245	LI:009658.13:2001MAY17	75	94	forward 1	TM	Transmembrane
245	LI:009658.13:2001MAY17	95	1317	forward 1	TM	Non-Cytosolic

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
245	LI:009658.13:2001MAY17	1318	1340	forward 1	TM	Transmembrane
245	LI:009658.13:2001MAY17	1341	1362	forward 1	TM	Cytosolic
245	LI:009658.13:2001MAY17	1363	1385	forward 1	TM	Transmembrane
245	LI:009658.13:2001MAY17	1386	1423	forward I	TM	Non-Cytosolic
245	LI:009658.13:2001MAY17	1	927	forward 2	TM	Non-Cytosolic
245	LI:009658.13:2001MAY17	928	950	forward 2	TM	Transmembrane
245	LI:009658.13:2001MAY17	951	956	forward 2	TM	Cytosolic
245	LI:009658.13:2001MAY17	957	979	forward 2	TM	Transmembrane
245	LI:009658.13:2001MAY17	980	1321	forward 2	TM	Non-Cytosolic
245	LI:009658.13:2001MAY17	1322	1344	forward 2	TM	Transmembrane
245	LI:009658.13:2001MAY17	1345	1364	forward 2	TM	Cytosolic
245	LI:009658.13:2001MAY17	1365	1387	forward 2	TM	Transmembrane
245	LI:009658.13:2001MAY17	1388	1423	forward 2	TM	Non-Cytosolic
245	LI:009658.13:2001MAY17	1	706	forward 3	TM	Non-Cytosolic
245	LI:009658.13:2001MAY17	707	729	forward 3	TM	Transmembrane
245	LI:009658.13:2001MAY17	730	749	forward 3	TM	Cytosolic
245	LI:009658.13:2001MAY17	750	772	forward 3	TM	Transmembrane
245	LI:009658.13:2001MAY17	773	791	forward 3	TM	Non-Cytosolic
245	LI:009658.13:2001MAY17	792	811	forward 3	TM	Transmembrane
245	LI:009658.13:2001MAY17	812	934	forward 3	TM	Cytosolic
245	LI:009658.13:2001MAY17	935	957	forward 3	TM	Transmembrane
245	LI:009658.13:2001MAY17	958	971	forward 3	TM	Non-Cytosolic
245	LI:009658.13:2001MAY17	972	994	forward 3	TM	Transmembrane
245	LI:009658.13:2001MAY17	995	1319	forward 3	TM	Cytosolic
245	LI:009658.13:2001MAY17	1320	1342	forward 3	TM	Transmembrane
245	LI:009658.13:2001MAY17	1343		forward 3		Non-Cytosolic
245	LI:009658.13:2001MAY17		1379	forward 3	TM	Transmembrane
245	LI:009658.13:2001MAY17	1380	1422	forward 3	TM	Cytosolic
246	LI:020012.14:2001MAY17		423	forward 1	TM	Cytosolic
246	LI:020012.14:2001MAY17	424	446	forward 1	TM	Transmembrane
246	LI:020012.14:2001MAY17	447	449	forward 1	TM	Non-Cytosolic
246	LI:020012.14:2001MAY17	450	469	forward 1	TM	Transmembrane
246	LI:020012.14:2001MAY17	470	884	forward 1	TM	Cytosolic
246	LI:020012.14:2001MAY17	885	907	forward 1	TM	Transmembrane
246	LI:020012.14:2001MAY17	908	955	forward 1	TM	Non-Cytosolic
246	LI:020012.14:2001MAY17	956	978	forward 1	TM	Transmembrane
246 246	LI:020012.14:2001MAY17	979	1013	forward 1	TM	Cytosolic
246 246	LI:020012.14:2001MAY17	1	582	forward 2	TM	Non-Cytosolic
246	LI:020012.14:2001MAY17	583	602	forward 2	TM	Transmembrane
246 246	LI:020012.14:2001MAY17 LI:020012.14:2001MAY17	603	614	forward 2	TM	Cytosolic
246 246	LI:020012.14:2001MAY17	615	637	forward 2	TM	Transmembrane
246 246	LI:020012.14:2001MAY17	638	695	forward 2	TM	Non-Cytosolic
		696	718	forward 2	TM	Transmembrane
246	LI:020012.14:2001MAY17 LI:020012.14:2001MAY17	719	724	forward 2	TM	Cytosolic
246		725	747	forward 2	TM	Transmembrane
246	LI:020012.14:2001MAY17 LI:020012.14:2001MAY17	748	761	forward 2	TM	Non-Cytosolic
246		762	781	forward 2	TM	Transmembrane
246	LI:020012.14:2001MAY17	. 782	953	forward 2	TM	Cytosolic
246	LI:020012.14:2001MAY17					· ·
246	LI:020012.14:2001MAY17	954	976	forward 2	TM	Transmembrane Non-Cytosolic
246	LI:020012.14:2001MAY17	977	1012		TM	-
246	LI:020012.14:2001MAY17	1	725	forward 3	TM	Non-Cytosolic
246	LI:020012.14:2001MAY17	726	748	forward 3	TM	Transmembrane
246	LI:020012.14:2001MAY17	749 761	760	forward 3	TM	Cytosolic
246	LI:020012.14:2001MAY17	761	780	forward 3	TM	Transmembrane

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
246	LI:020012.14:2001MAY17	781	814	forward 3	TM	Non-Cytosolic
246	LI:020012.14:2001MAY17	815	837	forward 3	TM	Transmembrane
246	L1:020012.14:2001MAY17	838	849	forward 3	TM	Cytosolic
246	LI:020012.14:2001MAY17	850	869	forward 3	TM	Transmembrane
246	LI:020012.14:2001MAY17	870	883	forward 3	TM	Non-Cytosolic
246	LI:020012.14:2001MAY17	884	906	forward 3	TM	Transmembrane
246	LI:020012.14:2001MAY17	907	926	forward 3	TM	Cytosolic
246	LI:020012.14:2001MAY17	927	946	forward 3	TM	Transmembrane
246	LI:020012.14:2001MAY17	947	955	forward 3	TM	Non-Cytosolic
246	LI:020012.14:2001MAY17	956	978	forward 3	TM	Transmembrane
246	LI:020012.14:2001MAY17	979	1012	forward 3	TM	Cytosolic
247	LI:020691.1:2001MAY17	1	19	forward 1	TM	Cytosolic
247	LI:020691.1:2001MAY17	20	42	forward 1	TM	Transmembrane
247	LI:020691.1:2001MAY17	43	255	forward 1	TM	Non-Cytosolic
247	LI:020691.1:2001MAY17	1	12	forward 2	TM	Cytosolic
247	LI:020691.1:2001MAY17	13	35	forward 2	TM	Transmembrane
247	LI:020691.1:2001MAY17	36	255	forward 2	TM	Non-Cytosolic
248	LI:021188.12:2001MAY17	1	171	forward 3	TM	Non-Cytosolic
248	LI:021188.12:2001MAY17	172	194	forward 3	TM	Transmembrane
248	LI:021188.12:2001MAY17	195	37 <b>7</b>	forward 3	TM	Cytosolic
249	LI:021324.4:2001MAY17	1	53	forward 1	TM	Cytosolic
249	LI:021324.4:2001MAY17	54	76	forward 1	TM	Transmembrane
249	LI:021324.4:2001MAY17	77	90	forward 1	TM	Non-Cytosolic
249	LI:021324.4:2001MAY17	91	113	forward 1	TM	Transmembrane
249	LI:021324.4:2001MAY17	114	227	forward 1	TM	Cytosolic
249 -	LI:021324.4:2001MAY17	228	250	forward 1	TM ·	Transmembrane
249	LI:021324.4:2001MAY17	251	710	forward 1	TM	Non-Cytosolic
250	LI:021834.15:2001MAY17	• 1	552	forward 2	TM	Non-Cytosolic
250	LI:021834.15:2001MAY17	553	575	forward 2	TM	Transmembrane
250	LI:021834.15:2001MAY17	576	595	forward 2	TM	Cytosolic
250	LI:021834.15:2001MAY17	596	618	forward 2	TM	Transmembrane
250	LI:021834.15:2001MAY17	619	771	forward 2	TM	Non-Cytosolic
251	LI:024841.1:2001MAY17	1	752	forward 1	TM	Non-Cytosolic
251	LI:024841.1:2001MAY17	753	775	forward 1	TM	Transmembrane
251	LI:024841.1:2001MAY17	776	1017	forward I	TM	Cytosolic
251	LI:024841.1:2001MAY17	1018	1040	forward 1	TM	Transmembrane
251	LI:024841.1:2001MAY17	1041	1054	forward 1	TM	Non-Cytosolic
251	L1:024841.1:2001MAY17	1055	1077	forward 1	TM	Transmembrane
251	LI:024841.1:2001MAY17	1078	1129	forward 1	TM ·	Cytosolic
251	LI:024841.1:2001MAY17	1	748	forward 2	TM	Non-Cytosolic
251	LI:024841.1:2001MAY17	749	771	forward 2	TM	Transmembrane
251	LI:024841.1:2001MAY17	772	1015	forward 2	TM	Cytosolic
251	LI:024841.1:2001MAY17	1016	1038	forward 2	TM	Transmembrane
251	LI:024841.1:2001MAY17	1039	1128	forward 2	TM	Non-Cytosolic
252	LI:025724.12:2001MAY17	1	446	forward 1	TM	Non-Cytosolic
252	LI:025724.12:2001MAY17	447	469	forward 1	TM	Transmembrane
252	LI:025724.12:2001MAY17	470	685	forward 1	TM	Cytosolic
252	LI:025724.12:2001MAY17	686	703	forward 1	TM	Transmembrane
252	LI:025724.12:2001MAY17	704	730	forward 1	TM	Non-Cytosolic
252	LI:025724.12:2001MAY17	731	753	forward 1	TM	Transmembrane
252	LI:025724.12:2001MAY17	754	895	forward 1	TM	Cytosolic
252	LI:025724.12:2001MAY17	896	918	forward 1	TM	Transmembrane
252	LI:025724.12:2001MAY17	919	984	forward 1	TM	Non-Cytosolic
252	LI:025724.12:2001MAY17	985	1007	forward 1	TM	Transmembrane

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
252	LI:025724.12:2001MAY17	1008	1018	forward 1	TM	Cytosolic
252	LI:025724.12:2001MAY17	1019	1041	forward 1	TM	Transmembrane
252	LI:025724.12:2001MAY17	1042	1074	forward 1	TM	Non-Cytosolic
252	LI:025724.12:2001MAY17	1075	1097	forward 1	TM	Transmembrane
252	LI:025724.12:2001MAY17	1098	1201	forward 1	TM	Cytosolic
252	LI:025724.12:2001MAY17	1	457	forward 2	TM	Non-Cytosolic
252	LI:025724.12:2001MAY17	458	480	forward 2	TM	Transmembrane
252	LI:025724.12:2001MAY17	481	695	forward 2	TM	Cytosolic
252	LI:025724.12:2001MAY17	696	718	forward 2	TM	Transmembrane
252	LI:025724.12:2001MAY17	719	732	forward 2	TM	Non-Cytosolic
252	LI:025724.12:2001MAY17	· 733	755	forward 2	TM	Transmembrane
252	LI:025724.12:2001MAY17	756	777	forward 2	TM	Cytosolic
252	LI:025724.12:2001MAY17	778	797	forward 2	TM	Transmembrane
252	LI:025724.12:2001MAY17	798	806	forward 2	TM	Non-Cytosolic
252	LI:025724.12:2001MAY17	807	829	forward 2	TM	Transmembrane
252	LI:025724.12:2001MAY17	830	921	forward 2	TM	Cytosolic
252	LI:025724.12:2001MAY17	922	939	forward 2	TM	Transmembrane
252	LI:025724.12:2001MAY17	940	1018	forward 2	TM	Non-Cytosolic
252	LI:025724.12:2001MAY17	1019	1041	forward 2	TM	Transmembrane
252	LI:025724.12:2001MAY17	1042	1133	forward 2	TM	Cytosolic
252	LI:025724.12:2001MAY17	1134	1156	forward 2	TM	Transmembrane
252	LI:025724.12:2001MAY17	1157	1165	forward 2	TM	Non-Cytosolic
252	LI:025724.12:2001MAY17	1166	1185	forward 2	TM	Transmembrane
- 252	LI:025724.12:2001MAY17	1186	1201	forward 2	TM	Cytosolic
252	LI:025724.12:2001MAY17	1	729	forward 3	TM	Non-Cytosolic
252	LI:025724.12:2001MAY17	730		forward 3	TM	Transmembrane
252	LI:025724.12:2001MAY17	753	764	forward 3	TM	Cytosolic
- 252	LI:025724.12:2001MAY17	765	<b>-</b> ,787	forward 3	· TM · ·	Transmembrane
252	LI:025724.12:2001MAY17	788	- 806	forward 3	TM	Non-Cytosolic
252	LI:025724.12:2001MAY17	807	829	forward 3	TM	Transmembrane
252	LI:025724.12:2001MAY17	830	873	forward 3	TM	Cytosolic
252	LI:025724.12:2001MAY17	874	896	forward 3	TM	Transmembrane
252	LI:025724.12:2001MAY17	897	910	forward 3	TM	Non-Cytosolic
252	LI:025724.12:2001MAY17	911	933	forward 3	TM	Transmembrane
252	LI:025724,12:2001MAY17	934	1042	forward 3	TM	Cytosolic
252	LI:025724.12:2001MAY17	1043	1065	forward 3	TM	Transmembrane
252	LI:025724.12:2001MAY17	1066	1200	forward 3	TM	Non-Cytosolic
253	LI:029328.2:2001MAY17	1	714	forward 1	TM	Non-Cytosolic
253	LI:029328.2:2001MAY17	715	737	forward 1	TM .	Transmembrane
253	LI:029328.2:2001MAY17	738	1025	forward 1	TM	Cytosolic
253	LI:029328.2:2001MAY17	1026	1043	forward 1	TM.	Transmembrane
253	LI:029328.2:2001MAY17	1044	1052		TM	Non-Cytosolic
253	LI:029328.2:2001MAY17	1053	1075	forward 1	TM	Transmembrane
253	LI:029328.2:2001MAY17	1076	1179	forward 1	TM	Cytosolic
253	LI:029328.2:2001MAY17	1180	1202	forward 1	TM	Transmembrane
253	LI:029328.2:2001MAY17		1283	forward 1	TM	Non-Cytosolic
253	LI:029328.2:2001MAY17	1284	1306		TM	Transmembrane
253	LI:029328.2:2001MAY17	1307	1312	forward 1	TM	Cytosolic
253	LI:029328.2:2001MAY17	1313	1335	forward 1	TM	Transmembrane
253	LI:029328.2:2001MAY17	1336	2000	forward 1	TM	Non-Cytosolic
253	LI:029328.2:2001MAY17	1	301	forward 3	TM	Non-Cytosolic
253	LI:029328.2:2001MAY17	302	324	forward 3	TM	Transmembrane
253	LI:029328.2:2001MAY17	325	365	forward 3	TM	Cytosolic
253	LI:029328.2:2001MAY17	366	384	forward 3	TM	Transmembrane

		TABI	E2			
SEQ D NO	Template ID	Start	Stop	Frame	Domain Type	Topology
253	LI:029328.2:2001MAY17	385	1947	forward 3	TM	Non-Cytosolic
253 253	LI:029328.2:2001MAY17	1948	1970	forward 3	TM	Transmembrane
253	LI:029328.2:2001MAY17	1971	1999	forward 3	TM	Cytosolic
254	LI:032171.5:2001MAY17	1	459	forward 1	TM	Non-Cytosolic
254 254	LI:032171.5:2001MAY17	460	477	forward I	TM	Transmembrane
254	LI:032171.5:2001MAY17	478	481	forward 1	TM	Cytosolic
254	LI:032171.5:2001MAY17	482	504	forward 1	TM	Transmembrane
254	LI:032171.5:2001MAY17	505	518	forward 1	TM	Non-Cytosolic
254	LI:032171.5:2001MAY17	519	541	forward 1	TM	Transmembrane
254	LI:032171.5:2001MAY17	542	553	forward 1	TM	Cytosolic
254	LI:032171.5:2001MAY17	554	576	forward 1	TM	Transmembrane
254	LI:032171.5:2001MAY17	577	626	forward 1	TM	Non-Cytosolic
254	LI:032171.5:2001MAY17	627	649	forward 1	TM	Transmembrane
254	LI:032171.5:2001MAY17	650	716	forward 1	TM	Cytosolic
254	LI:032171.5:2001MAY17	1	625	forward 2	TM	Non-Cytosolic
254	LI:032171.5:2001MAY17	626	648	forward 2	TM	Transmembrane
254	LI:032171.5:2001MAY17	649	660	forward 2	TM	Cytosolic
254	LI:032171.5:2001MAY17	661	683	forward 2	TM	Transmembrane
254	LI:032171.5:2001MAY17	684	686	forward 2	TM	Non-Cytosolic
254	LI:032171.5:2001MAY17	687	709	forward 2	TM	Transmembrane
254	LI:032171.5:2001MAY17	710	715	forward 2	TM	Cytosolic
255	LI:035055.1:2001MAY17	1	489	forward 2	TM	Non-Cytosolic
255	LI:035055.1:2001MAY17	490	512	forward 2	TM	Transmembrane
255	LI:035055.1:2001MAY17	513	584	forward 2	TM.	Cytosolic
255	LI:035055.1:2001MAY17	585	607	forward 2	TM	Transmembrane
255	LI:035055.1:2001MAY17	608			TM	Non-Cytosolic
255	LI:035055.1:2001MAY17	620	642	forward 2	TM.	Transmembrane
. 255	LI:035055.1:2001MAY17	643	673	forward 2	TM	Cytosolic
255	LI:035055.1:2001MAY17	1	619	forward 3	TM	Non-Cytosolic
255	LI:035055.1:2001MAY17	620	642	forward 3	TM	Transmembrane
255	LI:035055.1:2001MAY17	643	673	forward 3	TM	Cytosolic
256	LI:036747.17:2001MAY17	1	269	forward 1	TM	Cytosolic
256	LI:036747.17:2001MAY17	270	292	forward 1	TM	Transmembrane
256	LI:036747.17:2001MAY17	293	325	forward 1	TM	Non-Cytosolic
256	LI:036747.17:2001MAY17	326	348	forward 1	TM	Transmembrane
256	LI:036747.17:2001MAY17	349	427	forward 1	TM	Cytosolic
256	LI:036747.17:2001MAY17	428	450	forward 1	TM	Transmembrane
256	LI:036747.17:2001MAY17	451	464	forward 1	TM	Non-Cytosolic
256	LI:036747.17:2001MAY17	465	487	forward 1	TM	Transmembrane
256	LI:036747.17:2001MAY17	488	499	forward 1	TM	Cytosolic
256	LI:036747.17:2001MAY17	500	522	forward 1	TM	Transmembrane
256	LI:036747.17:2001MAY17	523	630	forward 1	TM	Non-Cytosolic
256	LI:036747.17:2001MAY17	631	653	forward 1	TM	Transmembrane
256	LI:036747.17:2001MAY17	654	665	forward 1	TM	Cytosolic
256	LI:036747.17:2001MAY17	666	687	forward 1	TM	Transmembrane
256	LI:036747.17:2001MAY17	688	762	forward 1	TM	Non-Cytosolic
256	LI:036747.17:2001MAY17	763	785	forward 1	TM	Transmembrane
256	LI:036747.17:2001MAY17	786	818	forward 1	TM	Cytosolic
256	LI:036747.17:2001MAY17	1	269	forward 2	TM	Non-Cytosolic
256	LI:036747.17:2001MAY17	270	292	forward 2	TM	Transmembrane
256	LI:036747.17:2001MAY17	293	478	forward 2	TM	Cytosolic
256	LI:036747.17:2001MAY17	479	501	forward 2	TM	Transmembrane
256	LI:036747.17:2001MAY17	502	515	forward 2	TM	Non-Cytosolic
256	LI:036747.17:2001MAY17	516	535	forward 2	TM	Transmembrane

		TABI	.E 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
256	LI:036747.17:2001MAY17	536	624	forward 2	TM	Cytosolic
256	LI:036747.17:2001MAY17	625	647	forward 2	TM	Transmembrane
256	LI:036747.17:2001MAY17	648	666	forward 2	TM	Non-Cytosolic
256	LI:036747.17:2001MAY17	667	689	forward 2	TM	Transmembrane
256	LI:036747.17:2001MAY17	690	709	forward 2	TM	Cytosolic
256	LI:036747.17:2001MAY17	710	732	forward 2	TM	Transmembrane
256	LI:036747.17:2001MAY17	733	751	forward 2	TM	Non-Cytosolic
256	LI:036747.17:2001MAY17	752	774	forward 2	TM	Transmembrane
256	LI:036747.17:2001MAY17	775	785	forward 2	TM	Cytosolic
256	LI:036747.17:2001MAY17	786	808	forward 2	TM	Transmembrane
256	LI:036747.17:2001MAY17	809	817	forward 2	TM	Non-Cytosolic
256	LI:036747.17:2001MAY17	1	269	forward 3	TM	Non-Cytosolic
256	LI:036747.17:2001MAY17	270	292	forward 3	TM	Transmembrane
256	LI:036747.17:2001MAY17	293	399	forward 3	TM	Cytosolic
256	LI:036747.17:2001MAY17	400	422	forward 3	TM	Transmembrane
256	LI:036747.17:2001MAY17	423	499	forward 3	TM	Non-Cytosolic
256	LI:036747.17:2001MAY17	500	522	forward 3	TM	Transmembrane
256	LI:036747.17:2001MAY17	523	624	forward 3	TM	Cytosolic
256	LI:036747.17:2001MAY17	625	642	forward 3	TM	Transmembrane
256	LI:036747.17:2001MAY17	643	677	forward 3	TM	Non-Cytosolic
256	LI:036747.17:2001MAY17	678	697	forward 3	. TM	Transmembrane
256	LI:036747.17:2001MAY17	698	709	forward 3	TM	Cytosolic
256	LI:036747.17:2001MAY17	710	732	forward 3	TM	Transmembrane
256	LI:036747.17:2001MAY17	733	751	forward 3	TM	Non-Cytosolic
256	LI:036747.17:2001MAY17	752	<i>7</i> 74	forward 3	TM	Transmembrane
256	LI:036747.17:2001MAY17	775	780	forward 3	TM	Cytosolic
256	LI:036747.17:2001MAY17	781	803	forward 3	TM	Transmembrane
256	LI:036747.17:2001MAY17	804	817	forward 3	TM	Non-Cytosolic
257	LI:044301.2:2001MAY17	1	965	forward 1	TM	Non-Cytosolic
257	LI:044301.2:2001MAY17	966	988	forward 1	TM	Transmembrane
257	LI:044301.2:2001MAY17	989	1000	forward 1	TM	Cytosolic
258	LI:061585.10:2001MAY17	1	672	forward 1	TM	Non-Cytosolic
258	LI:061585.10:2001MAY17	673	695	forward 1	TM	Transmembrane
258	LI:061585.10:2001MAY17	696	823	forward 1	TM	Cytosolic
258	LI:061585.10:2001MAY17	1	425	forward 2	TM	Non-Cytosolic
258	LI:061585.10:2001MAY17	426	445	forward 2	TM	Transmembrane
258	LI:061585.10:2001MAY17	446	451	forward 2	TM	Cytosolic
258	LI:061585.10:2001MAY17	452	471	forward 2	TM	Transmembrane
258	LI:061585.10:2001MAY17	472	680	forward 2	TM	Non-Cytosolic
258	LI:061585.10:2001MAY17	681	700	forward 2	TM	Transmembrane
258	LI:061585.10:2001MAY17	701	739	forward 2	TM .	Cytosolic
258	LI:061585.10:2001MAY17	740	762	forward 2	TM	Transmembrane
258	LI:061585.10:2001MAY17	763	823	forward 2	TM	Non-Cytosolic
258	LI:061585.10:2001MAY17	1	202	forward 3	TM	Cytosolic
258	LI:061585.10:2001MAY17	203	225	forward 3	TM	Transmembrane
258	LI:061585.10:2001MAY17	226	250	forward 3	TM	Non-Cytosolic
258	LI:061585.10:2001MAY17	251	273	forward 3	TM	Transmembrane
258	LI:061585.10:2001MAY17	274	277	forward 3	TM	Cytosolic
258	LI:061585.10:2001MAY17	278	300	forward 3	TM .	Transmembrane
258	LI:061585.10:2001MAY17	301	342	forward 3	TM	Non-Cytosolic
258	LI:061585.10:2001MAY17	343	365	forward 3	TM	Transmembrane
258	LI:061585.10:2001MAY17	366	371	forward 3	TM	Cytosolic
258	LI:061585.10:2001MAY17	372	394	forward 3	TM	Transmembrane
258	LI:061585.10:2001MAY17	395	822	forward 3	TM	Non-Cytosolic
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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
259	LI:066742.21:2001MAY17	1	63	forward 1	TM	Non-Cytosolic
259	LI:066742.21:2001MAY17	64	86	forward 1	TM	Transmembrane
259	LI:066742.21:2001MAY17	87	318	forward 1	TM	Cytosolic
259	LI:066742.21:2001MAY17	319	341	forward 1	TM	Transmembrane
259	LI:066742.21:2001MAY17	342	355	forward 1	· TM	Non-Cytosolic
259	LI:066742.21:2001MAY17	356	378	forward 1	TM	Transmembrane
259	LI:066742.21:2001MAY17	379	430	forward 1	TM	Cytosolic
259	L1:066742.21:2001MAY17	431	450	forward 1	TM	Transmembrane
259	LI:066742.21:2001MAY17	451	1022	forward 1	TM	Non-Cytosolic
259	LI:066742.21:2001MAY17	1023	1045	forward 1	TM	Transmembrane
259	LI:066742.21:2001MAY17	1046	1068	forward 1	TM	Cytosolic
259	LI:066742.21:2001MAY17	1069	1091	forward 1	TM	Transmembrane
259	LI:066742.21:2001MAY17	1092	1408	forward 1	TM	Non-Cytosolic
259	LI:066742.21:2001MAY17	1409	1431	forward 1	TM	Transmembrane
259	LI:066742.21:2001MAY17	1432	1437	forward 1	TM	Cytosolic
259	LI:066742.21:2001MAY17	1438	_	forward 1	TM	Transmembrane
259	LI:066742.21:2001MAY17	1461	1508	forward 1	TM	Non-Cytosolic
259	LI:066742.21:2001MAY17	1509	1531	forward 1	TM	Transmembrane
259	LI:066742.21:2001MAY17	1532	1542	forward 1	TM	Cytosolic
259	LI:066742.21:2001MAY17	1543	1562	forward 1	TM	Transmembrane
259	LI:066742.21:2001MAY17	1563	1583	forward 1	TM	Non-Cytosolic
259	LI:066742.21:2001MAY17	1303	119	forward 2	TM	Cytosolic
259	LI:066742.21:2001MAY17	120	142	forward 2	TM	Transmembrane
259	LI:066742.21:2001MAY17	143	146	forward 2	TM	Non-Cytosolic
259 259	LI:066742.21:2001MAY17	143	169	forward 2	TM	Transmembrane
	LI:066742,21:2001MAY17	170		forward 2	TM	Cytosolic
259 259	LI:066742.21:2001MAY17	352	374	forward 2	TM	Transmembrane
	LI:066742.21:2001MAY17		1202	forward 2	TM	Non-Cytosolic
259		1203	1202	forward 2	TM	Transmembrane
259	LI:066742.21:2001MAY17	1203	1313	forward 2	TM	Cytosolic
259	LI:066742.21:2001MAY17	1314	1336	forward 2	TM	Transmembrane
259	LI:066742.21:2001MAY17	1314	1372	forward 2	TM	Non-Cytosolic
259	LI:066742.21:2001MAY17	1373	1395	forward 2	TM	Transmembrane
259	LI:066742.21:2001MAY17	1373	1582	forward 2	TM	Cytosolic
259	LI:066742.21:2001MAY17			forward 3	TM	Cytosolic
259	LI:066742.21:2001MAY17	1	16	forward 3	TM	Transmembrane
259	LI:066742.21:2001MAY17	17	39			Non-Cytosolic
259	LI:066742.21:2001MAY17	40 54	53	forward 3	TM	Transmembrane
259	LI:066742.21:2001MAY17	54	76	forward 3	TM	
259	LI:066742.21:2001MAY17	77	179	forward 3	TM	Cytosolic
259	LI:066742.21:2001MAY17	180	202	forward 3	TM	Transmembrane
259	LI:066742.21:2001MAY17	203	312	forward 3	TM	Non-Cytosolic Transmembrane
259	LI:066742.21:2001MAY17	313	332	forward 3	TM	
259	LI:066742.21:2001MAY17	333	351	forward 3	TM	Cytosolic
259	LI:066742.21:2001MAY17	352	374	forward 3	TM	Transmembrane
259	L1:066742.21:2001MAY17	375	378	forward 3	TM	Non-Cytosolic
259	LI:066742.21:2001MAY17	379	401	forward 3	TM	Transmembrane
259	LI:066742.21:2001MAY17	402	580	forward 3	TM	Cytosolic
259	LI:066742.21:2001MAY17	581	598	forward 3	TM	Transmembrane
259	LI:066742.21:2001MAY17	599	644	forward 3	TM	Non-Cytosolic
259	LI:066742.21:2001MAY17	645	664	forward 3	TM	Transmembrane
259	LI:066742.21:2001MAY17	665	717	forward 3	TM	Cytosolic
259	LI:066742.21:2001MAY17	. 718	740	forward 3	TM	Transmembrane
259	LI:066742.21:2001MAY17	741	759	forward 3	TM	Non-Cytosolic
259	LI:066742.21:2001MAY17	760	782	forward 3	TM	Transmembrane

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
259	LI:066742.21:2001MAY17	783	1168	forward 3	TM	Cytosolic
259	LI:066742.21:2001MAY17	1169	1186	forward 3	TM	Transmembrane
259	LI:066742.21:2001MAY17	1187	1200	forward 3	TM	Non-Cytosolic
259	LI:066742.21:2001MAY17	1201	1223	forward 3	TM	Transmembrane
259	LI:066742.21:2001MAY17	1224	1409	forward 3	TM	Cytosolic
259	LI:066742.21:2001MAY17	1410	1432	forward 3	TM	Transmembrane
259	LI:066742.21:2001MAY17	1433	1507	forward 3	TM	Non-Cytosolic
259	LI:066742.21:2001MAY17	1508	1527	forward 3	TM	Transmembrane
259	L1:066742.21:2001MAY17	1528	1582	forward 3	TM	Cytosolic
260	LI:075492.206:2001MAY17	1	14	forward 1	TM	Non-Cytosolic
260	LI:075492.206:2001MAY17	15	37	forward 1	TM	Transmembrane
260	LI:075492.206:2001MAY17	38	206	forward 1	TM	Cytosolic
260	LI:075492.206:2001MAY17	207	229	forward 1	TM	Transmembrane
260	LI:075492.206:2001MAY17	230	476	forward 1	TM	Non-Cytosolic
260	LI:075492.206:2001MAY17	1	14	forward 2	TM	Non-Cytosolic
260	LI:075492.206:2001MAY17	15	34	forward 2	TM	Transmembrane
260	LI:075492.206:2001MAY17	35	46	forward 2	TM	Cytosolic
260	LI:075492.206:2001MAY17	47	69	forward 2	TM	Transmembrane
260	LI:075492.206:2001MAY17	70	476	forward 2	TM	Non-Cytosolic
260	LI:075492.206:2001MAY17	1	205	forward 3	TM	Cytosolic
260	LI:075492.206:2001MAY17	206	223	forward 3	TM	Transmembrane
260	LI:075492.206:2001MAY17	224	475	forward 3	TM	Non-Cytosolic
261	LI:090782.3:2001MAY17	1	131	forward 1	TM	Non-Cytosolic
261	LI:090782.3:2001MAY17	132	154	forward 1	TM	Transmembrane
261	LI:090782.3:2001MAY17	155	339	forward 1	TM	Cytosolic
261	LI:090782.3:2001MAY17	· · · 340	-362	forward 1	TM -	Transmembrane
261	LI:090782.3:2001MAY17	363	792	forward 1	TM	Non-Cytosolic
261	LI:090782.3:2001MAY17	1	417	forward 2	TM	Non-Cytosolic
261	L1:090782.3:2001MAY17	418	440	forward 2	TM	Transmembrane
261	LI:090782.3:2001MAY17	441	451	forward 2	TM	Cytosolic
261	LI:090782.3:2001MAY17	452	474	forward 2	TM	Transmembrane
261	LI:090782.3:2001MAY17	475	792	forward 2	TM	Non-Cytosolic
262	LI:1031308.1:2001MAY17	1	670	forward 1	TM	Non-Cytosolic
262	LI:1031308.1:2001MAY17	671	693	forward 1	TM	Transmembrane
262	LI:1031308.1:2001MAY17	694	785	forward 1	TM	Cytosolic
262	LI:1031308.1:2001MAY17	786	808	forward 1	TM	Transmembrane
262	LI:1031308.1:2001MAY17	809	848	forward 1	TM	Non-Cytosolic
262	LI:1031308.1:2001MAY17	849	866	forward 1	TM	Transmembrane
262	LI:1031308.1:2001MAY17	867	880	forward 1	TM	Cytosolic
262	LI:1031308.1:2001MAY17	1	675	forward 2	TM	Non-Cytosolic
262	LI:1031308.1:2001MAY17	676	698	forward 2	TM	Transmembrane
262	LI:1031308.1:2001MAY17	699	879	forward 2	TM	Cytosolic
262	LI:1031308.1:2001MAY17	1	560	forward 3	TM	Non-Cytosolic
262	LI:1031308.1:2001MAY17	561	583	forward 3		Transmembrane
262	LI:1031308.1:2001MAY17	584	633	forward 3	TM	Cytosolic
262	LI:1031308.1:2001MAY17	634	656	forward 3		Transmembrane
262	LI:1031308.1:2001MAY17	657	670	forward 3		Non-Cytosolic
262	LI:1031308.1:2001MAY17	671	693	forward 3		Transmembrane
262	LI:1031308.1:2001MAY17	694	879	forward 3		Cytosolic
263	LI:1054377.1:2001MAY17	1	76	forward 2		Cytosolic
263	LI:1054377.1:2001MAY17	77	99	forward 2		Transmembrane
263	LI:1054377.1:2001MAY17	100	501	forward 2		Non-Cytosolic
264	LI:1072074.10:2001MAY17	1	38	forward 3		Cytosolic
264	LI:1072074.10:2001MAY17	39	58	forward 3	TM	Transmembrane

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
264	LI:1072074.10:2001MAY17	59	1024	forward 3	TM	Non-Cytosolic
265	LI:1072889.15:2001MAY17	1	67	forward 1	TM	Cytosolic
265	LI:1072889.15:2001MAY17	68	87	forward 1	TM	Transmembrane
265	LI:1072889.15:2001MAY17	88	91	forward 1	TM	Non-Cytosolic
265	LI:1072889.15:2001MAY17	92	111	forward 1	TM	Transmembrane
265	LI:1072889.15:2001MAY17	112	310	forward 1	TM	Cytosolic
265	LI:1072889.15:2001MAY17	311	333	forward 1	TM	Transmembrane
265	LI:1072889.15:2001MAY17	334	627	forward 1	TM	Non-Cytosolic
265	LI:1072889.15:2001MAY17	628	650	forward 1	TM	Transmembrane
265	LI:1072889.15:2001MAY17	651	662	forward 1	TM	Cytosolic
265	LI:1072889.15:2001MAY17	663	685	forward 1	TM	Transmembrane
265	LI:1072889.15:2001MAY17	686	694	forward 1	TM	Non-Cytosolic
265	LI:1072889.15:2001MAY17	1	19	forward 2	TM	Cytosolic
265	LI:1072889.15:2001MAY17	20	42	forward 2	TM	Transmembrane
<b>265</b> .	LI:1072889.15:2001MAY17	43	51	forward 2	TM	Non-Cytosolic
265	LI:1072889.15:2001MAY17	52	74	forward 2	TM	Transmembrane
265	LI:1072889.15:2001MAY17	75	94	forward 2	TM	Cytosolic
265	LI:1072889.15:2001MAY17	95	117	forward 2	TM	Transmembrane
265	LI:1072889.15:2001MAY17	118	139	forward 2	TM	Non-Cytosolic
265	LI:1072889.15:2001MAY17	140	162	forward 2	TM	Transmembrane
265	LI:1072889.15:2001MAY17	163	272	forward 2	TM	Cytosolic
265	LI:1072889.15:2001MAY17	273	295	forward 2	TM	Transmembrane
265	LI:1072889.15:2001MAY17	296	520	forward 2	TM	Non-Cytosolic
265	LI:1072889.15:2001MAY17	521	-543	forward 2	TM	Transmembrane
265	LI:1072889.15:2001MAY17	544	612	forward 2	TM	Cytosolic
265	LI:1072889.15:2001MAY17	613	635	forward 2	TM	Transmembrane
265	LI:1072889.15:2001MAY17	. 636	657	forward 2	TM	Non-Cytosolic
265	LI:1072889.15:2001MAY17	658	680	forward 2	TM	Transmembrane
265	LI:1072889.15:2001MAY17	681	694	forward 2	TM	Cytosolic
265	LI:1072889.15:2001MAY17	1	38	forward 3	TM	Cytosolic
265	LI:1072889.15:2001MAY17	39	61	forward 3	TM	Transmembrane
265	LI:1072889.15:2001MAY17	62	92	forward 3	TM	Non-Cytosolic
265	LI:1072889.15:2001MAY17	93	115	forward 3	TM	Transmembrane
265	LI:1072889.15:2001MAY17	116	266	forward 3	TM	Cytosolic
265	LI:1072889.15:2001MAY17	267	289	forward 3	TM	Transmembrane
265	LI:1072889.15:2001MAY17	290	611	forward 3	TM	Non-Cytosolic
265	LI:1072889.15:2001MAY17	612	634		TM	Transmembrane
265	LI:1072889.15:2001MAY17	635	654	forward 3	TM	Cytosolic
265	LI:1072889.15:2001MAY17	655	677	forward 3	TM	Transmembrane
265	LI:1072889.15:2001MAY17	678	694	forward 3	TM	Non-Cytosolic
266	LI:1077480.1:2001MAY17	1	11	forward 1	TM	Cytosolic
266	LI:1077480.1:2001MAY17	12	34	forward 1	TM	Transmembrane
266	LI:1077480.1:2001MAY17	35	53	forward 1	TM	Non-Cytosolic
266	LI:1077480.1:2001MAY17	54	76	forward 1	TM	Transmembrane
266	LI:1077480.1:2001MAY17	77	109	forward 1	TM	Cytosolic
266	LI:1077480.1:2001MAY17	110	132	forward 1	TM	Transmembrane
266	LI:1077480.1:2001MAY17	133	176	forward 1	TM	Non-Cytosolic
266	LI:1077480.1:2001MAY17	177	199	forward 1	TM	Transmembrane
266	LI:1077480.1:2001MAY17	200	240	forward 1	TM	Cytosolic
266	LI:1077480.1:2001MAY17	241	263	forward 1	TM	Transmembrane
266	LI:1077480.1:2001MAY17	264	484	forward 1	TM	Non-Cytosolic
266	LI:1077480.1:2001MAY17	1	147	forward 2	TM	Cytosolic
266	LI:1077480.1:2001MAY17	148	170	forward 2	TM	Transmembrane
266	LI:1077480.1:2001MAY17	171	189	forward 2	TM	Non-Cytosolic
200	DI. 107/400.1.2001WIA 1 17	1/1		101 Walu Z	1 141	Hon-Cy tosone

		TABL	E 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
266	LI:1077480.1:2001MAY17	190	207	forward 2	TM	Transmembrane
266	LI:1077480.1:2001MAY17	208	251	forward 2	TM	Cytosolic
266	LI:1077480.1:2001MAY17	252	274	forward 2	TM	Transmembrane
266	LI:1077480.1:2001MAY17	275	331	forward 2	TM	Non-Cytosolic
266	LI:1077480.1:2001MAY17	332	354	forward 2	TM	Transmembrane
266	LI:1077480.1:2001MAY17	355	365	forward 2	. TM	Cytosolic
266	LI:1077480.1:2001MAY17	366	388	forward 2	TM	Transmembrane
266	LI:1077480.1:2001MAY17	389	484	forward 2	TM	Non-Cytosolic
266	LI:1077480.1:2001MAY17	1	59	forward 3	TM	Cytosolic
266	LI:1077480.1:2001MAY17	60	82	forward 3	TM	Transmembrane
266	LI:1077480.1:2001MAY17	83	101	forward 3	TM	Non-Cytosolic
266	LI:1077480.1:2001MAY17	102	121	forward 3	TM	Transmembrane
266	LI:1077480.1:2001MAY17	122	132	forward 3	TM	Cytosolic
266	LI:1077480.1:2001MAY17	133	155	forward 3	TM	Transmembrane
266	LI:1077480.1:2001MAY17	156	241	forward 3	TM	Non-Cytosolic
266	LI:1077480.1:2001MAY17	242	264	forward 3	TM	Transmembrane
266	LI:1077480.1:2001MAY17	265	484	forward 3	TM	Cytosolic
267	LI:1079555.1:2001MAY17	1	38	forward 2	TM	Cytosolic
267	LI:1079555.1:2001MAY17	39	61	forward 2	TM	Transmembrane
267	LI:1079555.1:2001MAY17	62	444	forward 2	TM	Non-Cytosolic
268	LI:1084992.28:2001MAY17	1	68	forward 3	TM	Cytosolic
268	LI:1084992.28:2001MAY17	69	91	forward 3	TM	Transmembrane
268	LI:1084992.28:2001MAY17	92	263	forward 3	TM	Non-Cytosolic
269	LI:1085472.5:2001MAY17	10 L	52	forward 1	TM	Cytosolic
269	LI:1085472.5:2001MAY17	.53	75	forward 1	TM	Transmembrane
269	LI:1085472.5:2001MAY17	· > ~76 ···	1590	forward 1.	,TM	Non-Cytosolic
270	LI:1086800.7:2001MAY17	1	84	forward 1	TM	Cytosolic
270	LI:1086800.7:2001MAY17	85	107	forward 1	TM	Transmembrane
270	LI:1086800.7:2001MAY17	: 108	140	forward 1	TM	Non-Cytosolic
270	LI:1086800.7:2001MAY17	141	163	forward 1	TM	Transmembrane
270	LI:1086800.7:2001MAY17	164	431	forward 1	TM	Cytosolic
270	LI:1086800.7:2001MAY17	432	451	forward 1	TM	Transmembrane
270	LI:1086800.7:2001MAY17	452	479	forward 1	TM	Non-Cytosolic
270	LI:1086800.7:2001MAY17	480	502	forward 1	TM	Transmembrane
270	LI:1086800.7:2001MAY17	503	521	forward 1	TM	Cytosolic
270	LI:1086800.7:2001MAY17	522	541	forward 1	TM	Transmembrane
270	LI:1086800.7:2001MAY17	542	593	forward 1	TM	Non-Cytosolic
270	LI:1086800.7:2001MAY17	594	616	forward 1	TM	Transmembrane
270	LI:1086800.7:2001MAY17	617	622	forward 1	TM	Cytosolic
270	LI:1086800.7:2001MAY17	623	645	forward 1	TM	Transmembrane
270	LI:1086800.7:2001MAY17	646	686	forward 1	TM	Non-Cytosolic
270	LI:1086800.7:2001MAY17	687	709	forward 1	TM	Transmembrane
270	LI:1086800.7:2001MAY17	710	981	forward 1	TM	Cytosolic
270	LI:1086800.7:2001MAY17	982	1004	forward 1	TM	Transmembrane
270	LI:1086800.7:2001MAY17	1005	1471	forward 1	TM	Non-Cytosolic
270	LI:1086800.7:2001MAY17	1472	1489	forward 1	TM	Transmembrane
270	LI:1086800.7:2001MAY17	1490	1578	forward 1	TM	Cytosolic
270	LI:1086800.7:2001MAY17	1579	1601	forward 1	TM	Transmembrane
270	LI:1086800.7:2001MAY17	1602	1641	forward 1	TM	Non-Cytosolic
270	LI:1086800.7:2001MAY17	1642	1664	forward 1	TM	Transmembrane
270	LI:1086800.7:2001MAY17	1665	1671	forward 1	TM	Cytosolic
270	LI:1086800.7:2001MAY17	1	49	forward 2	TM	Cytosolic
270	LI:1086800.7:2001MAY17	50	72	forward 2	TM	Transmembrane
270	LI:1086800.7:2001MAY17	73	86	forward 2	TM	Non-Cytosolic
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TABLE 2

		LABL				
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
270	LI:1086800.7:2001MAY17	87	109	forward 2	TM	Transmembrane
270	LI:1086800.7:2001MAY17	110	115	forward 2	TM	Cytosolic
270	LI:1086800.7:2001MAY17	116	138	forward 2	TM	Transmembrane
270	LI:1086800.7:2001MAY17	139	180	forward 2	TM	Non-Cytosolic
270	LI:1086800.7:2001MAY17	181	203	forward 2	TM	Transmembrane
270	LI:1086800.7:2001MAY17	204	238	forward 2	TM	Cytosolic
270	LI:1086800.7:2001MAY17	239	261	forward 2	TM	Transmembrane
270	LI:1086800.7:2001MAY17	262	275	forward 2	TM	Non-Cytosolic
270	LI:1086800.7:2001MAY17	276	298	forward 2	TM	Transmembrane
270	LI:1086800.7:2001MAY17	299	309	forward 2	TM	Cytosolic
270	LI:1086800.7:2001MAY17	310	332	forward 2	TM	Transmembrane
270	LI:1086800.7:2001MAY17	333	592	forward 2	TM	Non-Cytosolic
270	LI:1086800.7:2001MAY17	593	615	forward 2	TM	Transmembrane
270	LI:1086800.7:2001MAY17	616	868	forward 2	TM	Cytosolic
270	LI:1086800.7:2001MAY17	869	891	forward 2	TM	Transmembrane
270	LI:1086800.7:2001MAY17	892	905	forward 2	TM	Non-Cytosolic
270	LI:1086800.7:2001MAY17	906	928	forward 2	TM	Transmembrane
270	LI:1086800.7:2001MAY17	929	1036	forward 2	TM	Cytosolic
270	LI:1086800.7:2001MAY17	1037	1059	forward 2	TM	Transmembrane
270	LI:1086800.7:2001MAY17	1060	1670	forward 2	TM	Non-Cytosolic
270	LI:1086800.7:2001MAY17	1	46	forward 3	TM	Cytosolic
270	LI:1086800.7:2001MAY17	47	66	forward 3	TM	Transmembrane
270	LI:1086800.7:2001MAY17	67	80	forward 3	TM	Non-Cytosolic
270	LI:1086800.7:2001MAY17	81	103	forward 3	TM	Transmembrane
270	LI:1086800.7:2001MAY17	104	233	forward 3	TM	Cytosolic
270	LI:1086800.7:2001MAY17	234	256	forward 3	TM	Transmembrane
270	LI:1086800.7:2001MAY17	257	275	forward 3	TM	Non-Cytosolic
. 270	LI:1086800.7:2001MAY17	276	298	forward 3	TM	Transmembrane
270	LI:1086800.7:2001MAY17	299	388	forward-3	TM	Cytosolic
270	LI:1086800.7:2001MAY17	389	411	forward 3	TM	Transmembrane
270	LI:1086800.7:2001MAY17	412	584	forward 3	TM	Non-Cytosolic
270	LI:1086800.7:2001MAY17	585	607	forward 3	TM	Transmembrane
270	LI:1086800.7:2001MAY17	608	775	forward 3	TM	Cytosolic
270	LI:1086800.7:2001MAY17	776	795	forward 3	TM	Transmembrane
270	LI:1086800.7:2001MAY17	796	1206	forward 3	TM	Non-Cytosolic
270	LI:1086800.7:2001MAY17	1207	1229	forward 3	TM	Transmembrane
270	LI:1086800.7:2001MAY17	1230	1262	forward 3	TM	Cytosolic
270	LI:1086800.7:2001MAY17	1263	1285	forward 3	TM	Transmembrane
270	LI:1086800.7:2001MAY17	1286	1294	forward 3	TM	Non-Cytosolic
270	LI:1086800.7:2001MAY17	1295	1314	forward 3	TM	Transmembrane
270	LI:1086800.7:2001MAY17	1315	1446	forward 3	TM	Cytosolic
270	LI:1086800.7:2001MAY17	1447	1469	forward 3	TM	Transmembrane
270	LI:1086800.7:2001MAY17	1470	1630	forward 3	TM	Non-Cytosolic
270	LI:1086800.7:2001MAY17	1631	1653	forward 3	TM	Transmembrane
270	LI:1086800.7:2001MAY17	1654	1670	forward 3	TM	Cytosolic
271	LI:1089871.9:2001MAY17	1	343	forward 1	TM	Non-Cytosolic
271	LI:1089871.9:2001MAY17	344	363	forward 1	TM	Transmembrane
271	LI:1089871.9:2001MAY17	364	369	forward 1	TM	Cytosolic
271	LI:1089871.9:2001MAY17	370	392	forward 1	TM	Transmembrane
271	LI:1089871.9:2001MAY17	393	1441	forward 1	TM	Non-Cytosolic
271	LI:1089871.9:2001MAY17	1442	1464	forward 1	TM	Transmembrane
271	LI:1089871.9:2001MAY17	1465	1483		TM	Cytosolic
271	LI:1089871.9:2001MAY17	1484	1503		TM	Transmembrane
271	LI:1089871.9:2001MAY17	1504		forward 1	TM	Non-Cytosolic
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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
271	LI:1089871.9:2001MAY17	1547	1569	forward I	TM	Transmembrane
271	LI:1089871.9:2001MAY17	1570	1575	forward 1	TM	Cytosolic
271	LI:1089871.9:2001MAY17	1576	1598	forward 1	TM	Transmembrane
271	LI:1089871.9:2001MAY17	1599	1617	forward 1	TM	Non-Cytosolic
271	LI:1089871.9:2001MAY17	1618	1639	forward 1	TM	Transmembrane
271	LI:1089871.9:2001MAY17	1640	1753	forward 1	TM	Cytosolic
271	LI:1089871.9:2001MAY17	1754	1773	forward 1	· TM	Transmembrane
271	LI:1089871.9:2001MAY17	1774	1928	forward 1	TM	Non-Cytosolic
271	LI:1089871.9:2001MAY17	1	1219	forward 2	TM	Non-Cytosolic
271	LI:1089871.9:2001MAY17	1220	1242	forward 2	TM	Transmembrane
271	LI:1089871.9:2001MAY17	1243	1408	forward 2	TM	Cytosolic
271	LI:1089871.9:2001MAY17	1409	1426	forward 2	TM	Transmembrane
271	LI:1089871.9:2001MAY17	1427	1430	forward 2	TM	Non-Cytosolic
271	LI:1089871.9:2001MAY17	1431	1448	forward 2	TM	Transmembrane
271	LI:1089871.9:2001MAY17	1449	1454	forward 2	TM	Cytosolic
271	LI:1089871.9:2001MAY17	1455	1477	forward 2	TM	Transmembrane
271	LI:1089871.9:2001MAY17	1478	1481	forward 2	TM	Non-Cytosolic
	LI:1089871.9:2001MAY17	1482	1504	forward 2	TM	Transmembrane
271	LI:1089871.9:2001MAY17	1505	1579	forward 2	TM	Cytosolic
271		1580	1602	forward 2	TM	Transmembrane
271	LI:1089871.9:2001MAY17	1603	1673	forward 2	TM	Non-Cytosolic
271	LI:1089871.9:2001MAY17	1674	1693	forward 2	TM	Transmembrane
271	LI:1089871.9:2001MAY17	1694	1713	forward 2	TM	Cytosolic
271	LI:1089871.9:2001MAY17	1714	1736	forward 2	TM.	Transmembrane
271	LI:1089871.9:2001MAY17	1714	1759	forward 2	TM	Non-Cytosolic
271	LI:1089871.9:2001MAY17	1757	1782	forward 2	TM	Transmembrane
271	LI:1089871.9:2001MAY17			forward 2	TM	Cytosolic
271	LI:1089871.9:2001MAY17		1836	forward 2	TM	Transmembrane
271	LI:1089871.9:2001MAY17	1837	1859		TM	Non-Cytosolic
271	LI:1089871.9:2001MAY17		1862	forward 2	TM	Transmembrane
271	LI:1089871.9:2001MAY17	1863	1885 1928	forward 2 forward 2	TM	Cytosolic
271	LI:1089871.9:2001MAY17	1886			TM	Non-Cytosolic
271	LI:1089871.9:2001MAY17	1	1382	forward 3	TM	Transmembrane
271	LI:1089871.9:2001MAY17	1383	1405	forward 3		Cytosolic
271	LI:1089871.9:2001MAY17	1406	1425 1448	forward 3	TM TM	Transmembrane
271	LI:1089871.9:2001MAY17	1426 1449		forward 3	TM	Non-Cytosolic
271	LI:1089871.9:2001MAY17		1471	forward 3		Transmembrane
271	LI:1089871.9:2001MAY17	1472	1494	forward 3	TM	Cytosolic
271	LI:1089871.9:2001MAY17	1495	1571	forward 3	TM	Transmembrane
271	LI:1089871.9:2001MAY17	1572	1594		TM	Non-Cytosolic
271	LI:1089871.9:2001MAY17	1595	1669	forward 3	TM	Transmembrane
271	LI:1089871.9:2001MAY17	1670	1687		TM	
271	LI:1089871.9:2001MAY17	1688	1706		TM	Cytosolic
271	LI:1089871.9:2001MAY17	1707	1729		TM	Transmembrane
271	LI:1089871.9:2001MAY17	1730	1748		TM	Non-Cytosolic
271	LI:1089871.9:2001MAY17	1749	1771	forward 3	TM	Transmembrane
271	LI:1089871.9:2001MAY17	1772	1849		TM	Cytosolic
271	LI:1089871.9:2001MAY17	1850			TM	Transmembrane
271	LI:1089871.9:2001MAY17	1873		forward 3	TM	Non-Cytosolic
271	LI:1089871.9:2001MAY17	1882			TM	Transmembrane
271	LI:1089871.9:2001MAY17	1905			TM	Cytosolic
272	LI:110297.6:2001MAY17	1	63	forward 1	TM	Cytosolic
272	LI:110297.6:2001MAY17	64	86	forward 1	TM	Transmembrane
272	LI:110297.6:2001MAY17	87	127	forward 1	TM	Non-Cytosolic
272	LI:110297.6:2001MAY17	128	145	forward 1	TM	Transmembrane

		1	ABL				
SEQ D NO:	Template ID		tart	Stop	Frame	Domain Type	Topology
272	LI:110297.6:2001MAY17		46	156	forward 1	TM	Cytosolic
272	LI:110297.6:2001MAY17		.57	179	forward 1	TM	Transmembrane
272	LI:110297.6:2001MAY17	1	.80	293	forward 1	TM	Non-Cytosolic
272	LI:110297.6:2001MAY17	2	94	311	forward 1	TM	Transmembrane
272	LI:110297.6:2001MAY17	3	312	587	forward 1	· TM	Cytosolic
272	LI:110297.6:2001MAY17	5	88	610	forward 1	TM	Transmembrane
272	LI:110297.6:2001MAY17	6	511	684	forward 1	TM	Non-Cytosolic
272	LI:110297.6:2001MAY17	6	585	702	forward 1	TM	Transmembrane
272	LI:110297.6:2001MAY17	7	703	737	forward 1	TM	Cytosolic
272	LI:110297.6:2001MAY17	7	738	760	forward 1	TM	Transmembrane
272	LI:110297.6:2001MAY17	7	761	769	forward 1	TM	Non-Cytosolic
272	LI:110297.6:2001MAY17	7	770	792	forward 1	TM	Transmembrane
272	LI:110297.6:2001MAY17	7	193	801	forward 1	TM	Cytosolic
272	LI:110297.6:2001MAY17		1	735	forward 2	TM	Non-Cytosolic
272	LI:110297.6:2001MAY17	7	136	758	forward 2	TM	Transmembrane
272	LI:110297.6:2001MAY17	7	159	769	forward 2	TM	Cytosolic
272	LI:110297.6:2001MAY17		770	792	forward 2	TM	Transmembrane
272	LI:110297.6:2001MAY17		793	801	forward 2	TM	Non-Cytosolic
272	LI:110297.6:2001MAY17		1	11	forward 3	TM	Cytosolic
272	LI:110297.6:2001MAY17		12	29	forward 3	TM	Transmembrane
272	LI:110297.6:2001MAY17		30	604	forward 3	TM	Non-Cytosolic
272	LI:110297.6:2001MAY17		505	627	forward 3	TM	Transmembrane
272	LI:110297.6:2001MAY17		528	738	forward 3	TM	Cytosolic
272	LI:110297:6:2001MAY17		739	761	forward 3	TM	Transmembrane
272	LI:110297.6:2001MAY17		762	775	forward.3	TM	Non-Cytosolic
	LI:110297.6:2001MAY17		776	798	forward 3		Transmembrane
272	LI:110297.6:2001MAY17		799	800	forward 3	TM	Cytosolic
273	LI:1143463.8:2001MAY17		1	1373	forward 1	TM	Non-Cytosolic
273	LI:1143463.8:2001MAY17	1	374		forward 1	TM	Transmembrane
273	LI:1143463.8:2001MAY17		397		forward 1	TM	Cytosolic
273	LI:1143463.8:2001MAY17		556	1578	forward 1	TM	Transmembrane
273	LI:1143463.8:2001MAY17		579	1648	forward 1	TM	Non-Cytosolic
273	LI:1143463.8:2001MAY17		649	1668	forward 1	TM	Transmembrane
273	LI:1143463.8:2001MAY17		669	1712	forward 1	TM	Cytosolic
273	LI:1143463.8:2001MAY17		713	1735	forward 1	TM	Transmembrane
273	LI:1143463.8:2001MAY17		736		forward 1	TM	Non-Cytosolic
273	LI:1143463.8:2001MAY17		745	1764	forward 1	TM	Transmembrane
273	LI:1143463.8:2001MAY17		765	1835	forward 1	TM	Cytosolic
273	LI:1143463.8:2001MAY17				forward 1	TM	Transmembrane
273	LI:1143463.8:2001MAY17		859		forward 1	TM	Non-Cytosolic
273	LI:1143463.8:2001MAY17		873	1892	forward 1	TM	Transmembrane
273	LI:1143463.8:2001MAY17		893		forward 1	TM	Cytosolic
273	LI:1143463.8:2001MAY17		913		forward 1	TM	Transmembrane
273	LI:1143463.8:2001MAY17		936	1946	forward 1	TM	Non-Cytosolic
273	LI:1143463.8:2001MAY17		1	12	forward 2	TM	Cytosolic
273	LI:1143463.8:2001MAY17		13	35	forward 2	TM	Transmembrane
273	LI:1143463.8:2001MAY17		36	721	forward 2	TM	Non-Cytosolic
273	LI:1143463.8:2001MAY17		722	739	forward 2	TM	Transmembrane
273	LI:1143463.8:2001MAY17		740	751	forward 2	TM	Cytosolic
273	LI:1143463.8:2001MAY17		740 752	774	forward 2	TM	Transmembrane
273 273	LI:1143463.8:2001MAY17		732 775	777	forward 2	TM.	Non-Cytosolic
273			778	797	forward 2	TM	Transmembrane
273	LI:1143463.8:2001MAY17				forward 2	TM	Cytosolic
	LI:1143463.8:2001MAY17		798	837			Transmembrane
273	LI:1143463.8:2001MAY17		838	860	forward 2	TM	Transmentor and

TABLE 2	$T_{\ell}$	٩B	LE	2
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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
273	LI:1143463.8:2001MAY17	861	1641	forward 2	TM	Non-Cytosolic
273	LI:1143463.8:2001MAY17	1642	1664	forward 2	TM	Transmembrane
273	LI:1143463.8:2001MAY17	1665	1690	forward 2	TM	Cytosolic
273	LI:1143463.8:2001MAY17	1691	1710	forward 2	TM	Transmembrane
273	LI:1143463.8:2001MAY17	1711	1738	forward 2	TM	Non-Cytosolic
273	LI:1143463.8:2001MAY17	1739	1761	forward 2	TM	Transmembrane
273	LI:1143463.8:2001MAY17	1762	1835	forward 2	TM	Cytosolic
273	LI:1143463.8:2001MAY17	1836	1858	forward 2	TM	Transmembrane
273	LI:1143463.8:2001MAY17	1859	1877	forward 2	TM	Non-Cytosolic
273	LI:1143463.8:2001MAY17	1878	1900	forward 2	TM ,	Transmembrane
273	LI:1143463.8:2001MAY17	1901	1946	forward 2	TM	Cytosolic
273	LI:1143463.8:2001MAY17	1	1257	forward 3	TM	Non-Cytosolic
273	LI:1143463.8:2001MAY17	1258	1280	forward 3	TM	Transmembrane
273	LI:1143463.8:2001MAY17	1281	1381	forward 3	TM	Cytosolic
273	LI:1143463.8:2001MAY17	1382	1404	forward 3	TM	Transmembrane
273	LI:1143463.8:2001MAY17	1405	1744	forward 3	TM	Non-Cytosolic
273	LI:1143463.8:2001MAY17	1745	1767	forward 3	TM	Transmembrane
273	LI:1143463.8:2001MAY17	1768	1816	forward 3	TM	Cytosolic
273	LI:1143463.8:2001MAY17	1817	1839	forward 3	TM	Transmembrane
273	LI:1143463.8:2001MAY17	1840	1848	forward 3	TM	Non-Cytosolic
273	LI:1143463.8:2001MAY17	1849	1871	forward 3	TM	Transmembrane
273	LI:1143463.8:2001MAY17	1872	1877	forward 3	TM	Cytosolic
273	LI:1143463.8:2001MAY17	1878	1897	forward 3	TM	Transmembrane
273	LI:1143463.8:2001MAY17	1898	1911	forward 3	TM	Non-Cytosolic
273	LI:1143463.8:2001MAY17	1912	1931	forward 3	TM	Transmembrane
273	LI:1143463.8:2001MAY17	1932	1946	ioi ward 5	TM	Cytosolic
274	LI:1144466.1:2001MAY17	1	708	forward 1	TM	Non-Cytosolic
274	LI:1144466.1:2001MAY17	709	728	forward 1	TM	Transmembrane
274	LI:1144466.1:2001MAY17	729	741	forward 1	TM	Cytosolic
274	LI:1144466.1:2001MAY17	1	707	forward 3	TM	Non-Cytosolic
274	LI:1144466.1:2001MAY17	708	727	forward 3	TM	Transmembrane
274	LI:1144466.1:2001MAY17	728	740	forward 3	TM	Cytosolic
275	LI:1170624.2:2001MAY17	1	354	forward 1	TM	Cytosolic Transmembrane
275	LI:1170624.2:2001MAY17	355 378	377 378	forward 1 forward 1	TM TM	Non-Cytosolic
275	LI:1170624.2:2001MAY17 LI:1170624.2:2001MAY17	378 1	356	forward 3	TM	Non-Cytosolic
275 275		357	374	forward 3	TM	Transmembrane
275 275	LI:1170624.2:2001MAY17 LI:1170624.2:2001MAY17	375	378	forward 3	TM	Cytosolic
276	LI:1171602.39:2001MAY17	1	133	forward 1	TM	Non-Cytosolic
276 276	LI:1171602.39:2001MAY17	134	156	forward 1	TM	Transmembrane
276	LI:1171602.39:2001MAY17	157	234	forward 1	TM	Cytosolic
276	LI:1171602.39:2001MAY17	1	4	forward 2	TM	Cytosolic
276	LI:1171602.39:2001MAY17	5	22	forward 2	TM	Transmembrane
276	LI:1171602.39:2001MAY17	23	36	forward 2	TM	Non-Cytosolic
276	LI:1171602.39:2001MAY17	37	59	forward 2	TM	Transmembrane
276	LI:1171602.39:2001MAY17	60	234	forward 2	TM	Cytosolic
277	LI:1182361.3:2001MAY17	1	33	forward 1	TM	Cytosolic
277	LI:1182361.3:2001MAY17	34	56	forward 1	TM	Transmembrane
277	LI:1182361.3:2001MAY17	57	245	forward 1	TM	Non-Cytosolic
278	LI:1188194.15:2001MAY17	1	542	forward 2	TM	Non-Cytosolic
278	LI:1188194.15:2001MAY17	543	565	forward 2	TM	Transmembrane
278	LI:1188194.15:2001MAY17	566	585	forward 2	TM	Cytosolic
278	LI:1188194.15:2001MAY17	586	608	forward 2	TM	Transmembrane
278	LI:1188194.15:2001MAY17	609	640	forward 2	TM	Non-Cytosolic
		166	-			

TABLE 2	

CEO D NO.	Towns ID	Ctout	Stop	Frame	Domain Type	Topology
SEQ D NO:	Template ID	Start 641	Stop 659	forward 2	TM	Topology Transmembrane
278	LI:1188194.15:2001MAY17		662	forward 2	TM	Cytosolic
278	LI:1188194.15:2001MAY17	660	538	forward 3		•
278	LI:1188194.15:2001MAY17	1	-	forward 3	TM	Non-Cytosolic
278	LI:1188194.15:2001MAY17	539	561		TM	Transmembrane
278	LI:1188194.15:2001MAY17	562	634	forward 3	TM	Cytosolic
278	LI:1188194.15:2001MAY17	635	657	forward 3	TM	Transmembrane
278	LI:1188194.15:2001MAY17	658	662	forward 3	TM	Non-Cytosolic
279	LI:1189195.7:2001MAY17	1	426	forward 1	TM	Non-Cytosolic
279	LI:1189195.7:2001MAY17	427	445	forward 1	TM	Transmembrane
279	LI:1189195.7:2001MAY17	446	457	forward 1	TM	Cytosolic
279	LI:1189195.7:2001MAY17	458	480	forward 1	TM	Transmembrane
279	LI:1189195.7:2001MAY17	481	521	forward 1	TM	Non-Cytosolic
279	LI:1189195.7:2001MAY17	522	539	forward 1	TM	Transmembrane
279	LI:1189195.7:2001MAY17	540	567	forward 1	TM	Cytosolic
279	LI:1189195.7:2001MAY17	568	590	forward 1	TM	Transmembrane
279	LI:1189195.7:2001MAY17	591	661	forward 1	TM	Non-Cytosolic
279	LI:1189195.7:2001MAY17	1	283	forward 2	TM	Non-Cytosolic
279	LI:1189195.7:2001MAY17	284	306	forward 2	TM	Transmembrane
279	LI:1189195.7:2001MAY17	307	380	forward 2	TM	Cytosolic
279	LI:1189195.7:2001MAY17	381	403	forward 2	TM	Transmembrane
279	LI:1189195.7:2001MAY17	404	422	forward 2	TM	Non-Cytosolic
279	LI:1189195.7:2001MAY17	423	. 445	forward 2	TM	Transmembrane
279	LI:1189195.7:2001MAY17	446	457	forward 2	TM	Cytosolic
279	LI:1189195.7:2001MAY17	458	480	forward 2	TM	Transmembrane
279	LI:1189195.7:2001MAY17	481	489	forward 2	TM	Non-Cytosolic
279	LI:1189195.7:2001MAY17	490	509	forward 2	· · TM	Transmembrane
279	LI:1189195.7:2001MAY17	510	521	forward 2	· TM	Cytosolic
279	LI:1189195.7:2001MAY17	522	539	forward 2	. TM	Transmembrane
279	LI:1189195.7:2001MAY17	540	573	forward 2	TM	Non-Cytosolic
279	LI:1189195.7:2001MAY17	574	596	forward 2	TM	Transmembrane
279	LI:1189195.7:2001MAY17	597	602	forward 2	TM	Cytosolic
279	LI:1189195.7:2001MAY17	603	625	forward 2	TM	Transmembrane
279	LI:1189195.7:2001MAY17	626	661	forward 2	TM	Non-Cytosolic
279	LI:1189195.7:2001MAY17	1	67	forward 3	TM	Cytosolic
279	LI:1189195.7:2001MAY17	68	90	forward 3	TM	Transmembrane
279	LI:1189195.7:2001MAY17	91	109	forward 3	TM	Non-Cytosolic
279	LI:1189195.7:2001MAY17	110	132	forward 3	TM	Transmembrane
279	LI:1189195.7:2001MAY17	133	270	forward 3	TM	Cytosolic
279	LI:1189195.7:2001MAY17	271	293	forward 3	TM	Transmembrane
279	LI:1189195.7:2001MAY17	294	359	forward 3	TM	Non-Cytosolic
279	LI:1189195.7:2001MAY17	360	382	forward 3	TM	Transmembrane
279	LI:1189195.7:2001MAY17	383	388	forward 3	TM	Cytosolic
279	LI:1189195.7:2001MAY17	389	411	forward 3	TM	Transmembrane
279	LI:1189195.7:2001MAY17	412	458	forward 3	TM	Non-Cytosolic
279	LI:1189195.7:2001MAY17	459	481	forward 3	TM	Transmembrane
279	LI:1189195.7:2001MAY17	482	517	forward 3	TM	Cytosolic
279	LI:1189195.7:2001MAY17	518	537	forward 3	TM	Transmembrane
279 279	LI:1189195.7:2001MAY17	538	660	forward 3	TM	Non-Cytosolic
280		1	127	forward 1	TM	Non-Cytosolic
, 280	LI:1190092.13:2001MAY17 LI:1190092.13:2001MAY17	128	150	forward 1	TM	Transmembrane
280	LI:1190092.13:2001MAY17 LI:1190092.13:2001MAY17	151	162	forward 1	TM	Cytosolic
			162	forward 2	TM	Cytosolic
280	LI:1190092.13:2001MAY17	1	328	forward 1	TM	Non-Cytosolic
281	LI:1190318.4:2001MAY17	] 220				Transmembrane
281	LI:1190318.4:2001MAY17	329	351	forward 1	TM	mansmemorane

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#### TABLE 2 Stop Frame Domain Type Topology Start SEQ D NO: Template ID 375 TM Cytosolic 352 forward 1 281 LI:1190318.4:2001MAY17 TM Cytosolic LI:144233.1:2001MAY17 1 20 forward 1 282 43 TM Transmembrane 282 LI:144233.1:2001MAY17 21 forward 1 44 241 forward 1 TM Non-Cytosolic 282 LI:144233.1:2001MAY17 246 forward 1 Non-Cytosolic 283 LI:154608.1:2001MAY17 1 TM 269 Transmembrane 283 LI:154608.1:2001MAY17 247 forward 1 TM LI:154608.1:2001MAY17 270 307 forward 1 TM Cytosolic 283 LI:154608.1:2001MAY17 1 40 forward 2 TM Cytosolic 283 41 63 forward 2 TM Transmembrane 283 LI:154608.1:2001MAY17 LI:154608.1:2001MAY17 64 196 forward 2 TM Non-Cytosolic 283 283 LI:154608.1:2001MAY17 197 219 forward 2 TM Transmembrane 283 LI:154608.1:2001MAY17 220 307 forward 2 TM Cytosolic 203 forward 3 TM Non-Cytosolic 283 LI:154608.1:2001MAY17 1 forward 3 Transmembrane 283 LI:154608.1:2001MAY17 204 226 TM Cytosolic 283 LI:154608.1:2001MAY17 227 245 forward 3 TM 268 forward 3 TM Transmembrane 283 LI:154608.1:2001MAY17 246 Non-Cytosolic 269 306 forward 3 TM 283 LI:154608.1:2001MAY17 99 TM Cytosolic forward 1 284 LI:170101.1:2001MAY17 1 Transmembrane 100 122 forward 1 TM 284 LI:170101.1:2001MAY17 LI:170101.1:2001MAY17 123 386 forward 1 TM Non-Cytosolic 284 35 forward 2 TM Non-Cytosolic 284 LI:170101.1:2001MAY17 1 Transmembrane LI:170101.1:2001MAY17 36 58 forward 2 TM 284 59 99 forward 2 TM Cytosolic LI:170101.1:2001MAY17 284 100 forward 2 TM Transmembrane .LI:170101.1:2001MAY17 122 284 forward 2 TM Non-Cytosolic 284 LI:170101.1:2001MAY17 123 136 LI:170101.1:2001MAY17 137 156 forward 2 TM Transmembrane 284 386 forward 2 TM Cytosolic 284 LI:170101.1:2001MAY17 157 LI:170101.1:2001MAY17 81 forward 3 TM Cytosolic 284 1 LI:170101.1:2001MAY17 82 101 forward 3 TM Transmembrane 284 TM Non-Cytosolic 102 110 forward 3 284 LI:170101.1:2001MAY17 Transmembrane 284 LI:170101.1:2001MAY17 111 133 forward 3 TM Cytosolic 284 LI:170101.1:2001MAY17 134 139 forward 3 TM 140 157 forward 3 TM Transmembrane 284 LI:170101.1:2001MAY17 386 TM Non-Cytosolic 284 LI:170101.1:2001MAY17 158 forward 3 forward 1 TM Cytosolic 285 LI:180043.1:2001MAY17 4 1 5 27 TM Transmembrane forward 1 285 LI:180043.1:2001MAY17 28 Non-Cytosolic 46 forward 1 TM 285 LI:180043.1:2001MAY17 Transmembrane 285 LI:180043.1:2001MAY17 47 69 forward 1 TM 70 238 forward 1 TM Cytosolic 285 LI:180043.1:2001MAY17 Transmembrane 239 261 forward 1 TM 285 LI:180043.1:2001MAY17 TM Non-Cytosolic 262 373 forward 1 285 LI:180043.1:2001MAY17 208 Non-Cytosolic forward 3 TM 285 LI:180043.1:2001MAY17 1 209 Transmembrane 285 LI:180043.1:2001MAY17 228 forward 3 TM 229 373 forward 3 TM Cytosolic 285 LI:180043.1:2001MAY17 286 LI:193050.1:2001MAY17 1 142 forward 1 TM Non-Cytosolic LI:193050.1:2001MAY17 143 162 forward 1 TM Transmembrane 286 339 forward 1 TM Cytosolic 286 LI:193050.1:2001MAY17 163 286 LI:193050.1:2001MAY17 340 358 forward 1 TM Transmembrane 286 LI:193050.1:2001MAY17 359 777 forward 1 TM Non-Cytosolic Non-Cytosolic 286 LI:193050.1:2001MAY17 1 182 forward 2 TM 205 Transmembrane 286 LI:193050.1:2001MAY17 183 forward 2 TM Cytosolic 286 LI:193050.1:2001MAY17 206 247 forward 2 TM 270 Transmembrane 286 LI:193050.1:2001MAY17 248 forward 2 TM

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LI:193050.1:2001MAY17

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forward 2

TM

Non-Cytosolic

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
286	LI:193050.1:2001MAY17	330	352	forward 2	TM	Transmembrane
286	LI:193050.1:2001MAY17	353	482	forward 2	TM	Cytosolic
286	LI:193050.1:2001MAY17	483	505	forward 2	TM	Transmembrane
286	LI:193050.1:2001MAY17	506	536	forward 2	TM	Non-Cytosolic
286	LI:193050.1:2001MAY17	537	559	forward 2	TM	Transmembrane
286	LI:193050.1:2001MAY17	560	684	forward 2	TM	Cytosolic
286	LI:193050.1:2001MAY17	685	704	forward 2	TM	Transmembrane
286	LI:193050.1:2001MAY17	705	734	forward 2	TM	Non-Cytosolic
286	LI:193050.1:2001MAY17	735	757	forward 2	TM	Transmembrane
286	LI:193050.1:2001MAY17	758	777	forward 2	TM	Cytosolic
286	LI:193050.1:2001MAY17	1	144	forward 3	TM	Cytosolic
286	LI:193050.1:2001MAY17	145	167	forward 3	TM	Transmembrane
286	LI:193050.1:2001MAY17	168	181	forward 3	TM .	Non-Cytosolic
286	LI:193050.1:2001MAY17	182	204	forward 3	TM	Transmembrane
286	LI:193050.1:2001MAY17	205	255	forward 3	TM	Cytosolic
286	LI:193050.1:2001MAY17	256	278	forward 3	TM	Transmembrane
286	LI:193050.1:2001MAY17	279	327	forward 3	TM	Non-Cytosolic
286	LI:193050.1:2001MAY17	328	350	forward 3	TM	Transmembrane
286	LI:193050.1:2001MAY17	351	419	forward 3	TM	Cytosolic
286	LI:193050.1:2001MAY17	420	439	forward 3	TM	Transmembrane
286	LI:193050.1:2001MAY17	440	776	forward 3	TM	Non-Cytosolic
287	LI:197477.31:2001MAY17	1	447	forward 1	TM	Non-Cytosolic
287	LI:197477.31:2001MAY17	448	470	forward 1	TM	Transmembrane
287	LI:197477.31:2001MAY17	471	500	forward 1	TM	Cytosolic
287	LI:197477.31:2001MAY17	501	523	forward 1	TM	Transmembrane
287	LI:197477.31:2001MAY17	524	,532	forward 1	TM	Non-Cytosolic
	LI:197477.31:2001MAY17	533	550	forward 1	TM	Transmembrane
287	LI:197477.31:2001MAY17	551	655	forward 1	TM	Cytosolic
288	LI:199639.12:2001MAY17	1		forward 1	TM	Non-Cytosolic
288	LI:199639.12:2001MAY17	267	289	forward 1	TM	Transmembrane
288	LI:199639.12:2001MAY17	290	334	forward 1	TM	Cytosolic
288	LI:199639.12:2001MAY17	335	357	forward 1	TM	Transmembrane
288	LI:199639.12:2001MAY17	358	360	forward 1	TM	Non-Cytosolic
288	LI:199639.12:2001MAY17	361	383	forward 1	TM	Transmembrane
288	LI:199639.12:2001MAY17	384	509	forward 1	TM	Cytosolic
288	LI:199639.12:2001MAY17	510	532	forward 1	TM	Transmembrane
288	LI:199639.12:2001MAY17	533	556	forward 1	TM	Non-Cytosolic
288	LI:199639.12:2001MAY17	557	579	forward 1	TM	Transmembrane
288	LI:199639.12:2001MAY17 LI:199639.12:2001MAY17	580	585	forward 1	TM	Cytosolic
288	LI:199639.12:2001MAY17 LI:199639.12:2001MAY17	586	608	forward 1	TM	Transmembrane
288	LI:199639.12:2001MAY17 LI:199639.12:2001MAY17	609	798	forward 1	TM	Non-Cytosolic
288	LI:199639.12:2001MAY17	1	252	forward 2	TM	Cytosolic
288		253	275	forward 2	TM	Transmembrane
	LI:199639.12:2001MAY17	276	798	forward 2	TM	Non-Cytosolic
288	LI:199639.12:2001MAY17		101	forward 1	TM	Cytosolic
289	LI:200058.6:2001MAY17	102	124	forward 1	TM	Transmembrane
289	LI:200058.6:2001MAY17	102				Non-Cytosolic
289	LI:200058.6:2001MAY17	125	546 402	forward 1 forward 2	TM TM	Non-Cytosolic
289	LI:200058.6:2001MAY17	1				Transmembrane
289	LI:200058.6:2001MAY17	403	422	forward 2	TM	
289	LI:200058.6:2001MAY17	423	434	forward 2	TM	Cytosolic Transmembrane
289	LI:200058.6:2001MAY17	435	454	forward 2	TM	
289	LI:200058.6:2001MAY17	455	468	forward 2	TM	Non-Cytosolic
289	LI:200058.6:2001MAY17	469	491	forward 2	TM	Transmembrane
289	LI:200058.6:2001MAY17	492	546	forward 2	TM	Cytosolic

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CEO D NO	T. 1. ID	TADL		Γ	Domein Tune	T1
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
290	LI:201374.23:2001MAY17	1	177	forward 1	TM	Non-Cytosolic
290	LI:201374.23:2001MAY17	178	200	forward 1	TM	Transmembrane
290	LI:201374.23:2001MAY17	201	202	forward 1	TM	Cytosolic
290	LI:201374.23:2001MAY17	1	58	forward 3	TM	Cytosolic
290	LI:201374.23:2001MAY17	59	81	forward 3	TM	Transmembrane
290	LI:201374.23:2001MAY17	82	201	forward 3	TM	Non-Cytosolic
291	LI:201824.1:2001MAY17	1	488	forward 1	TM	Non-Cytosolic
291	LI:201824.1:2001MAY17	489	511	forward 1	TM	Transmembrane
291	LI:201824.1:2001MAY17	512	713	forward 1	TM	Cytosolic
291	LI:201824.1:2001MAY17	714	736	forward 1	TM	Transmembrane
291	LI:201824.1:2001MAY17	737	804	forward 1	TM	Non-Cytosolic
291	LI:201824.1:2001MAY17	805	824	forward 1	TM	Transmembrane
291	LI:201824.1:2001MAY17	825	836	forward 1	TM	Cytosolic
291	LI:201824.1:2001MAY17	837	856	forward 1	TM	Transmembrane
291	LI:201824.1:2001MAY17	857	870	forward 1	TM	Non-Cytosolic
291	LI:201824.1:2001MAY17	871	893	forward 1	TM	Transmembrane
291	LI:201824.1:2001MAY17	894	1218	forward 1	TM	Cytosolic
291	LI:201824.1:2001MAY17	1219	1249	forward 1	TM	Transmembrane
291	LI:201824.1:2001MAY17	1250	1253	forward 1	TM	Non-Cytosolic
291	LI:201824.1:2001MAY17	· 1	143	forward 3	TM	Cytosolic
291	LI:201824.1:2001MAY17	144	166	forward 3	TM	Transmembrane
291	LI:201824.1:2001MAY17	167	199	forward 3	TM	Non-Cytosolic
291	LI:201824.1:2001MAY17	200	219	forward 3	TM	Transmembrane
291	LI:201824.1:2001MAY17 ···	220	231	forward 3	TM	Cytosolic
291	LI:201824.1:2001MAY17	232	254	forward 3	TM	Transmembrane
291	LI:201824.1:2001MAY17	255	500	forward 3	TM	Non-Cytosolic
291	LI:201824.1:2001MAY17	501	523	forward 3	TM	Transmembrane
291	LI:201824.1:2001MAY17	524	529	forward 3	TM	Cytosolic
291	LI:201824.1:2001MAY17	530	549	forward 3	TM	Transmembrane
291	LI:201824.1:2001MAY17	550	575	forward 3	TM	Non-Cytosolic
291	LI:201824.1:2001MAY17	576	598	forward 3	TM	Transmembrane
291	LI:201824.1:2001MAY17	599	692	forward 3	TM	Cytosolic
291	LI:201824.1:2001MAY17	693	715	forward 3	TM	Transmembrane
291	LI:201824.1:2001MAY17	716	729	forward 3	TM	Non-Cytosolic
291	LI:201824.1:2001MAY17	730	752	forward 3	TM	Transmembrane
291	LI:201824.1:2001MAY17	753	860	forward 3	TM	Cytosolic
291	LI:201824.1:2001MAY17	861	883	forward 3	TM	Transmembrane
291	LI:201824.1:2001MAY17	884	1226	forward 3	TM	Non-Cytosolic
291	LI:201824.1:2001MAY17	1227	1249	forward 3	TM	Transmembrane
291	LI:201824.1:2001MAY17	1250		forward 3	TM	Cytosolic
292	LI:201989.11:2001MAY17	1	406	forward 1	TM	Non-Cytosolic
292	LI:201989.11:2001MAY17	407	429	forward 1	TM	Transmembrane
292	LI:201989.11:2001MAY17	430	443	forward 1	TM	Cytosolic
292	LI:201989.11:2001MAY17	1	400	forward 3	TM	Non-Cytosolic
292	LI:201989.11:2001MAY17	401	423	forward 3	TM	Transmembrane
292	LI:201989.11:2001MAY17	424	442	forward 3	TM	Cytosolic
293	LI:2035159.1:2001MAY17	1	52	forward 1	TM	Cytosolic
293	L1:2035159.1:2001MAY17	53	72	forward 1	. TM	Transmembrane
293	LI:2035159.1:2001MAY17	73	242	forward 1	TM	Non-Cytosolic
293 293	LI:2035159.1:2001MAY17	13	216	forward 2	TM	Cytosolic
293	LI:2035159.1:2001MAY17	217	236	forward 2		Transmembrane
293 293	L1:2035159.1:2001MAY17	237	242	forward 2	TM TM	Non-Cytosolic
293 294	LI:2033139.1:2001MAY17 LI:204818.10:2001MAY17	1	242 364	forward 2		Non-Cytosolic
294 294	LI:204818.10:2001MAY17	365	387	forward 1	TM	Transmembrane
<i>27</i> 4	L1.204010.10.2001MA 11/	303 169		iorward I	TM	riansmeniorane
		109				

1.1.2048.18.10.2001MAY17   38	SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
294			388	•	forward 1	TM	
294	294				forward 2	TM	•
294	-				forward 2	TM	•
294					forward 2		Cytosolic
1.1.204818.10.2001MAY17   389							•
295							
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298   Li:209773.25:2001MAY17   28   363   forward 1   TM   Non-Cytosolic							•
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298         LI:209773:25:2001MAY17         30         362         forward 3         TM         Non-Cytosolic           299         LI:2117881.32:2001MAY17         1         177         forward 1         TM         Non-Cytosolic           299         LI:2117881.32:2001MAY17         178         200         forward 1         TM         Transmembrane           299         LI:2117881.32:2001MAY17         201         386         forward 1         TM         Cytosolic           299         LI:2117881.32:2001MAY17         406         forward 1         TM         Non-Cytosolic           299         LI:2117881.32:2001MAY17         407         422         forward 2         TM         Non-Cytosolic           299         LI:2117881.32:2001MAY17         289         311         forward 2         TM         Transmembrane           299         LI:2117881.32:2001MAY17         312         325         forward 2         TM         Transmembrane           299         LI:2117881.32:2001MAY17         326         348         forward 2         TM         Cytosolic           299         LI:2117881.32:2001MAY17         349         422         forward 3         TM         Non-Cytosolic           299         LI:2117881.32:2001MAY17 </td <td></td> <td>The state of the s</td> <td></td> <td></td> <td></td> <td></td> <td>•</td>		The state of the s					•
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299         LI:2117881.32:2001MAY17         201         386         forward 1         TM         Cytosolic           299         LI:2117881.32:2001MAY17         387         406         forward 1         TM         Transmembrane           299         LI:2117881.32:2001MAY17         407         422         forward 1         TM         Non-Cytosolic           299         LI:2117881.32:2001MAY17         1         288         forward 2         TM         Cytosolic           299         LI:2117881.32:2001MAY17         312         325         forward 2         TM         Non-Cytosolic           299         LI:2117881.32:2001MAY17         326         348         forward 2         TM         Non-Cytosolic           299         LI:2117881.32:2001MAY17         349         422         forward 2         TM         Cytosolic           299         LI:2117881.32:2001MAY17         1         384         forward 3         TM         Non-Cytosolic           299         LI:2117881.32:2001MAY17         405         422         forward 3         TM         Transmembrane           299         LI:2118140.9:2001MAY17         405         422         forward 3         TM         Cytosolic           300         LI:2118140.9:							
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299         LI:2117881.32:2001MAY17         1         288         forward 2         TM         Cytosolic           299         LI:2117881.32:2001MAY17         289         311         forward 2         TM         Transmembrane           299         LI:2117881.32:2001MAY17         312         325         forward 2         TM         Non-Cytosolic           299         LI:2117881.32:2001MAY17         349         422         forward 2         TM         Cytosolic           299         LI:2117881.32:2001MAY17         1         384         forward 3         TM         Non-Cytosolic           299         LI:2117881.32:2001MAY17         385         404         forward 3         TM         Transmembrane           299         LI:2117881.32:2001MAY17         405         422         forward 3         TM         Cytosolic           300         LI:2118140.9:2001MAY17         1         446         forward 3         TM         Cytosolic           300         LI:2118140.9:2001MAY17         1         446         forward 1         TM         Non-Cytosolic           300         LI:2118140.9:2001MAY17         470         510         forward 1         TM         Transmembrane           300         LI:2118140.9:2001MA							
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299         LI:2117881.32:2001MAY17         326         348         forward 2         TM         Transmembrane           299         LI:2117881.32:2001MAY17         349         422         forward 2         TM         Cytosolic           299         LI:2117881.32:2001MAY17         1         384         forward 3         TM         Non-Cytosolic           299         LI:2117881.32:2001MAY17         405         422         forward 3         TM         Cytosolic           300         LI:2118140.9:2001MAY17         405         422         forward 1         TM         Non-Cytosolic           300         LI:2118140.9:2001MAY17         1         446         forward 1         TM         Non-Cytosolic           300         LI:2118140.9:2001MAY17         470         510         forward 1         TM         Cytosolic           300         LI:2118140.9:2001MAY17         511         533         forward 1         TM         Transmembrane           300         LI:2118140.9:2001MAY17         534         566         forward 1         TM         Non-Cytosolic           300         LI:2118140.9:2001MAY17         1         179         forward 2         TM         Transmembrane           300         LI:2118140.9:200							
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			202		forward 3		•

TABLE 2 Domain Type SEQ D NO: Start Stop Frame Template ID Topology 220 233 forward 3 TM Non-Cytosolic 300 LI:2118140.9:2001MAY17 300 234 256 forward 3 TM **Transmembrane** LI:2118140.9:2001MAY17 296 300 LI:2118140.9:2001MAY17 257 forward 3 TM Cytosolic 319 297 forward 3 TM Transmembrane 300 LI:2118140.9:2001MAY17 442 TM 300 LI:2118140.9:2001MAY17 320 forward 3 Non-Cytosolic 443 465 forward 3 TM **Transmembrane** 300 LI:2118140.9:2001MAY17 300 466 565 forward 3 TM Cytosolic LI:2118140.9:2001MAY17 45 forward 2 TM Cytosolic 301 LI:2118151.15:2001MAY17 1 68 forward 2 TM Transmembrane 301 LI:2118151.15:2001MAY17 46 69 82 forward 2 TM Non-Cytosolic 301 LI:2118151.15:2001MAY17 102 LI:2118151.15:2001MAY17 83 forward 2 TM Transmembrane 301 360 103 forward 2 TM Cytosolic 301 LI:2118151.15:2001MAY17 383 forward 2 TM Transmembrane 301 LI:2118151.15:2001MAY17 361 409 LI:2118151.15:2001MAY17 384 forward 2 TM Non-Cytosolic 301 410 429 forward 2 Transmembrane 301 LI:2118151.15:2001MAY17 TM LI:2118151.15:2001MAY17 430 441 forward 2 TM Cytosolic 301 464 301 442 forward 2 TM Transmembrane LI:2118151.15:2001MAY17 301 467 forward 2 TM Non-Cytosolic LI:2118151.15:2001MAY17 465 490 301 LI:2118151.15:2001MAY17 468 forward 2 TM Transmembrane 491 509 TM Cytosolic 301 LI:2118151.15:2001MAY17 forward 2 301 510 529 forward 2 TM Transmembrane LI:2118151.15:2001MAY17 Non-Cytosolic 301 LI:2118151.15:2001MAY17 530 543 forward 2 TM 301 LI:2118151.15:2001MAY17 544 566 forward 2 TM Transmembrane 301 LI:2118151.15:2001MAY17 567 755 forward 2 TM Cytosolic 301 LI:2118151.15:2001MAY17 756 778 forward 2 TM Transmembrane 779 2202 forward 2 TM Non-Cytosolic 301 LI:2118151.15:2001MAY17 301 LI:2118151.15:2001MAY17 .2203 2225 forward 2 TM Transmembrane 2226 2231 forward'2 301 LI:2118151.15:2001MAY17 TM Cytosolic 301 2232 2254 LI:2118151.15:2001MAY17 forward.2 TM Transmembrane 301 2255 2268 Non-Cytosolic LI:2118151.15:2001MAY17 forward 2 TM 2291 301 LI:2118151.15:2001MAY17 2269 forward 2 TM Transmembrane 2292 2293 forward 2 Cytosolic 301 LI:2118151.15:2001MAY17 TM 302 LI:2118324.9:2001MAY17 338 forward 1 TM Non-Cytosolic 1 339 361 forward 1 TM Transmembrane 302 LI:2118324.9:2001MAY17 380 Cytosolic 302 LI:2118324.9:2001MAY17 362 forward 1 TM LI:2118324.9:2001MAY17 403 Transmembrane 302 381 forward 1 TM 302 LI:2118324.9:2001MAY17 404 412 forward 1 TM Non-Cytosolic 302 LI:2118324.9:2001MAY17 413 435 forward 1 TM Transmembrane 302 LI:2118324.9:2001MAY17 436 580 forward 1 TM Cytosolic 603 302 LI:2118324.9:2001MAY17 581 forward 1 TM Transmembrane 302 LI:2118324.9:2001MAY17 604 612. forward 1 TM Non-Cytosolic 302 LI:2118324.9:2001MAY17 613 635 forward 1 TM Transmembrane 302 LI:2118324.9:2001MAY17 636 836 forward 1 TM Cytosolic LI:2118324.9:2001MAY17 302 837 855 forward 1 TM Transmembrane 1153 TM 302 LI:2118324.9:2001MAY17 856 forward 1 Non-Cytosolic 302 1176 forward 1 TM Transmembrane LI:2118324.9:2001MAY17 1154 302 LI:2118324.9:2001MAY17 1177 1200 forward 1 TM Cytosolic 302 LI:2118324.9:2001MAY17 1201 1223 forward 1 TM Transmembrane 302 1224 1242 forward 1 TM Non-Cytosolic LI:2118324.9:2001MAY17 302 1265 forward 1 TM Transmembrane LI:2118324.9:2001MAY17 1243 302 1518 TM Cytosolic LI:2118324.9:2001MAY17 1266 forward 1 302 LI:2118324.9:2001MAY17 1519. 1541 forward 1 TM Transmembrane 302 1542 1578 TM Non-Cytosolic LJ:2118324.9:2001MAY17 forward 1

4

forward 2

TM

Cytosolic

302

LI:2118324.9:2001MAY17

TAB	LE 2
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SEC	D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
	302	LI:2118324.9:2001MAY17	5	27	forward 2	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	28	334	forward 2	TM	Non-Cytosolic
	302	LI:2118324.9:2001MAY17	335	357	forward 2	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	358	392	forward 2	TM	Cytosolic
	302	LI:2118324.9:2001MAY17	393	415	forward 2	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	416	491	forward 2	TM	Non-Cytosolic
	302	LI:2118324.9:2001MAY17	492	514	forward 2	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	515	534	forward 2	TM	Cytosolic
	302	LI:2118324.9:2001MAY17	535	557	forward 2	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	558	585	forward 2	TM	Non-Cytosolic
	302	LI:2118324.9:2001MAY17	586	608	forward 2	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	609	614	forward 2	TM	Cytosolic
	302	LI:2118324.9:2001MAY17	615	637	forward 2	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	638	1154	forward 2	TM	Non-Cytosolic
	302	LI:2118324.9:2001MAY17	1155	1177	forward 2	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	1178	1224	forward 2	TM	Cytosolic
	302	LI:2118324.9:2001MAY17	1225	1247	forward 2	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	1248	1578	forward 2	TM	Non-Cytosolic
	302	LI:2118324.9:2001MAY17	1240	152	forward 3	TM	Cytosolic
	302	LI:2118324.9:2001MAY17	153	175	forward 3	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	176	206	forward 3	TM	Non-Cytosolic
	302	LI:2118324.9:2001MAY17	207	229	forward 3	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	230	334	forward 3	TM	Cytosolic
	302	LI:2118324.9:2001MAY17	i 335	. 357	forward 3		Transmembrane
	302	LI:2118324.9:2001MAY17	358	410	forward 3	TM	Non-Cytosolic
	302	LI:2118324.9:2001MAY17	411		forward 3	TM	Transmembrane
	302	LI:2118324.9:2001MAY17		· 535 ·			Cytosolic
	302	LI:2118324.9:2001MAY17	536	558	forward 3	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	559	592	forward 3	TM	Non-Cytosolic
	302	LI:2118324.9:2001MAY17	593	615	forward 3	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	616	838	forward 3	TM	Cytosolic
	302	LI:2118324.9:2001MAY17	839	861	forward 3	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	862	890	forward 3	TM	Non-Cytosolic
	302	LI:2118324.9:2001MAY17	891	910	forward 3	ΤM	Transmembrane
	302	LI:2118324.9:2001MAY17	911	1094	forward 3	TM	Cytosolic
	302	LI:2118324.9:2001MAY17	1095	1117	forward 3	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	1118	1141	forward 3	TM	Non-Cytosolic
	302	LI:2118324.9:2001MAY17	1142	1164	forward 3	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	1165	1225	forward 3	TM	Cytosolic
	302	LI:2118324.9:2001MAY17	1226	1248	forward 3	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	1249	1267	forward 3	TM	Non-Cytosolic
	302	LI:2118324.9:2001MAY17	1268	1290	forward 3	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	1200	1512	forward 3	TM	Cytosolic
	302	LI:2118324.9:2001MAY17	1513	1535	forward 3	TM	Transmembrane
	302	LI:2118324.9:2001MAY17	1536	1577	forward 3	TM	Non-Cytosolic
	303	LI:2118368.12:2001MAY17	1330	50	forward 2	TM	Non-Cytosolic
	303		51	73	forward 2	TM	Transmembrane
	303	LI:2118368.12:2001MAY17 LI:2118368.12:2001MAY17	74	73 84	forward 2	TM	Cytosolic
	303	LI:2118368.12:2001MAY17	85	107	forward 2	TM	Transmembrane
	303	LI:2118368.12:2001MAY17	108	121	forward 2	TM	Non-Cytosolic
	303	LI:2118368.12:2001MAY17	122	144	forward 2	TM	Transmembrane
	303	LI:2118368.12:2001MAY17	145	171	forward 2	TM	Cytosolic
			172	171	forward 2	TM	Transmembrane
	303	LI:2118368.12:2001MAY17	172	452	forward 2	TM	Non-Cytosolic
	303	LI:2118368.12:2001MAY17	193	432	ioi watu Z	1147	11011-Cytosoffe

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
303	LI:2118368.12:2001MAY17	1	53	forward 3	TM	Cytosolic
303	LI:2118368.12:2001MAY17	54	76	forward 3	TM	Transmembrane
303	LI:2118368.12:2001MAY17	7 <b>7</b>	452	forward 3	TM	Non-Cytosolic
304	LI:2119448.5:2001MAY17	1	220	forward 3	TM	Cytosolic
304	LI:2119448.5:2001MAY17	221	243	forward 3	TM	Transmembrane
304	LI:2119448.5:2001MAY17	244	262	forward 3	TM	Non-Cytosolic
304	LI:2119448.5:2001MAY17	263	285	forward 3	TM	Transmembrane
304	LI:2119448.5:2001MAY17	286	393	forward 3	TM	Cytosolic
304	LI:2119448.5:2001MAY17	394	416	forward 3	TM	Transmembrane
304	LI:2119448.5:2001MAY17	417	1120	forward 3	TM	Non-Cytosolic
305	LI:212023.7:2001MAY17	1	69	forward 2	TM	Cytosolic
305	LI:212023.7:2001MAY17	70	92	forward 2	TM	Transmembrane
305	LI:212023.7:2001MAY17	93	106	forward 2	TM	Non-Cytosolic
305	L1:212023.7:2001MAY17	107	129	forward 2	TM	Transmembrane
305	LI:212023.7:2001MAY17	130	140	forward 2	TM	Cytosolic
305	LI:212023.7:2001MAY17	141	158	forward 2	TM	Transmembrane
305	LI:212023.7:2001MAY17	159	172	forward 2	TM	Non-Cytosolic
305	LI:212023.7:2001MAY17	173	195	forward 2	TM	Transmembrane
305	LI:212023.7:2001MAY17	196	491	forward 2	TM	Cytosolic
306	LI:2120556.1:2001MAY17	1	99	forward 3	TM	Cytosolic
306	LI:2120556.1:2001MAY17	100	122	forward 3	TM	Transmembrane
306	LI:2120556.1:2001MAY17	123	386	forward 3	TM	Non-Cytosolic
307	LI:2121577.3:2001MAY17	1	73	forward 1	TM	Cytosolic
308	LI:2123395.11:2001MAY17	1	364.	forward 1	TM	Non-Cytosolic
308	LI:2123395.11:2001MAY17	365	387	forward 1	TM	Transmembrane
	LI:2123395.11:2001MAY17	-388		forward 1	TM	Cytosolic
308 308	LI:2123395.11:2001MAY17	458	480	forward 1	TM	
	LI:2123395.11:2001MAY17	481		forward 1	TM	Non-Cytosolic
308	LI:2123395.11:2001MAY17	589	611	forward 1	TM	Transmembrane
308	LI:2123395.11:2001MAY17	612	707	forward 1	TM	Cytosolic
308	LI:2123395.11:2001MAY17	708	730	forward 1	TM	Transmembrane
308		731	775	forward 1	TM	Non-Cytosolic
308	LI:2123395.11:2001MAY17	776	798	forward 1	TM	Transmembrane
308	LI:2123395.11:2001MAY17	799	883	forward 1	TM	Cytosolic
308	LI:2123395.11:2001MAY17	199	535	forward 2	TM	Non-Cytosolic
308	LI:2123395.11:2001MAY17	536	558	forward 2	TM	Transmembrane
308	LI:2123395.11:2001MAY17		578	forward 2	TM	Cytosolic
308	LI:2123395.11:2001MAY17	559	601	forward 2	TM	Transmembrane
308	LI:2123395.11:2001MAY17	579 602	665		TM	Non-Cytosolic
308	LI:2123395.11:2001MAY17			forward 2		Transmembrane
308	LI:2123395.11:2001MAY17	666	688	forward 2	TM	Cytosolic
308	LI:2123395.11:2001MAY17	689	707	forward 2	. TM	Transmembrane
308	LI:2123395.11:2001MAY17	708	730	forward 2	TM	Non-Cytosolic
308	LI:2123395.11:2001MAY17	731	749	forward 2	TM	Transmembrane
308	LI:2123395.11:2001MAY17	750	772	forward 2	TM	
308	LI:2123395.11:2001MAY17	773	882	forward 2	TM	Cytosolic
308	LI:2123395.11:2001MAY17	1	369	forward 3	TM	Non-Cytosolic
308	LI:2123395.11:2001MAY17	370	392	forward 3	TM	Transmembrane
308	LI:2123395.11:2001MAY17	393	437	forward 3	TM	Cytosolic
308	LI:2123395.11:2001MAY17	438	460	forward 3	TM	Transmembrane
308	LI:2123395.11:2001MAY17	461	882	forward 3	TM	Non-Cytosolic
309	LI:2123452.9:2001MAY17	1	462	forward 1	TM	Non-Cytosolic
309	LI:2123452.9:2001MAY17	463	485	forward 1	TM	Transmembrane
309	LI:2123452.9:2001MAY17	486	497	forward 1	TM	Cytosolic
309	LI:2123452.9:2001MAY17	498	520	forward 1	TM	Transmembrane

TABLE 2							
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology	
309	LI:2123452.9:2001MAY17	521	534	forward 1	TM	Non-Cytosolic	
309	LI:2123452.9:2001MAY17	535	552	forward 1	TM	Transmembrane	
309	LI:2123452.9:2001MAY17	553	556	forward 1	TM	Cytosolic	
309	LI:2123452.9:2001MAY17	557	574	forward 1	TM	Transmembrane	
309	LI:2123452.9:2001MAY17	575	583	forward 1	TM	Non-Cytosolic	
309	LI:2123452.9:2001MAY17	584	606	forward 1	TM	Transmembrane	
309	LI:2123452.9:2001MAY17	607	686	forward 1	TM	Cytosolic	
309	LI:2123452.9:2001MAY17	1	468	forward 2	TM	Non-Cytosolic	
309	LI:2123452.9:2001MAY17	469	491	forward 2	TM	Transmembrane	
309	LI:2123452.9:2001MAY17	492	551	forward 2	TM	Cytosolic	
309	LI:2123452.9:2001MAY17	552	574	forward 2	TM	Transmembrane	
309	LI:2123452.9:2001MAY17	575	583	forward 2	TM	Non-Cytosolic	
309	LI:2123452.9:2001MAY17	584	606	forward 2	TM	Transmembrane	
309	LI:2123452.9:2001MAY17	607	657	forward 2	TM	Cytosolic	
309	LI:2123452.9:2001MAY17	658	680	forward 2	TM	Transmembrane	
309	LI:2123452.9:2001MAY17	681	686	forward 2	TM	Non-Cytosolic	
309	LI:2123452.9:2001MAY17	1	389	forward 3	TM	Non-Cytosolic	
309 309	LI:2123452.9:2001MAY17	390	408	forward 3	TM	Transmembrane	
	LI:2123452.9:2001MAY17	409	428	forward 3	TM	Cytosolic	
309	LI:2123452.9:2001MAY17	429	448	forward 3	TM	Transmembrane	
309	LI:2123452.9:2001MAY17	449	457	forward 3	TM	Non-Cytosolic	
309		458	480	forward 3	TM	Transmembrane	
309	LI:2123452.9:2001MAY17 LI:2123452.9:2001MAY17	481	484	forward 3	TM	Cytosolic	
309	LI:2123452.9:2001MAY17	485	507	forward 3	TM	Transmembrane	
309	LI:2123452.9:2001MAY17	508	685	forward 3	TM	Non-Cytosolic	
309	LI:2164109.1:2001MAY17	1		forward 1		Cytosolic	
	LI:2164109.1:2001MAY17	21	43	forward 1	TM	Transmembrane	
310 310	LI:2164109.1:2001MAY17	44		forward 1		Non-Cytosolic	
310	LI:2164109.1:2001MAY17	128	150	forward 1	TM .	Transmembrane	
310	LI:2164109.1:2001MAY17	151	154	forward 1	TM	Cytosolic	
310	LI:2164109.1:2001MAY17	1	12	forward 3	TM	Cytosolic	
310	LI:2164109.1:2001MAY17	13	35	forward 3	TM	Transmembrane	
310	LI:2164109.1:2001MAY17	36	153	forward 3	TM	Non-Cytosolic	
311	LI:2168320.1:2001MAY17	1	9	forward 2	TM	Non-Cytosolic	
311	LI:2168320.1:2001MAY17	10	32	forward 2	TM	Transmembrane	
311	LI:2168320.1:2001MAY17	33	38	forward 2	TM	Cytosolic	
311	LI:2168320.1:2001MAY17	39	61	forward 2	TM	Transmembrane	
311	LI:2168320.1:2001MAY17	62	123	forward 2	TM	Non-Cytosolic	
311	LI:2168320.1:2001MAY17	124	146	forward 2	TM	Transmembrane	
311	LI:2168320.1:2001MAY17	147	172	forward 2	TM	Cytosolic	
311	LI:2168320.1:2001MAY17	1	9	forward 3	TM	Non-Cytosolic	
311	LI:2168320.1:2001MAY17	10	32	forward 3	TM	Transmembrane	
311	LI:2168320.1:2001MAY17	33	172	forward 3	TM	Cytosolic	
312	LI:2173577.1:2001MAY17	1	30	forward 1	TM	Non-Cytosolic	
312	LI:2173577.1:2001MAY17	31	53	forward 1	TM	Transmembrane	
312	LI:2173577.1:2001MAY17	54	65	forward 1	TM	Cytosolic	
312	LI:2173577.1:2001MAY17	66	88	forward 1	TM	Transmembrane	
312	LI:2173577.1:2001MAY17	89	92	forward 1	TM	Non-Cytosolic	
312	LI:2173577.1:2001MAY17	93	115	forward 1	TM	Transmembrane	
312	LI:2173577.1:2001MAY17	116	194	forward 1	TM	Cytosolic	
312	LI:2173577.1:2001MAY17	1	37	forward 2	TM	Cytosolic	
	LI:2173577.1:2001MAY17	38	57	forward 2	TM	Transmembrane	
312	LI:2173577.1:2001MAY17	58	66	forward 2	TM	Non-Cytosolic	
312	LI:2173577.1:2001MAY17	67	89	forward 2	TM	Transmembrane	
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SEQ D NO: Template ID	Start	Stop	Frame	Domain Type	Topology
312 LI:2173577.1:2001MAY17	90	193 43	forward 2 forward 3	TM	Cytosolic Cytosolic
312 LI:2173577.1:2001MAY17	1			TM	Transmembrane
312 LI:2173577.1:2001MAY17	44	66 75	forward 3	TM	Non-Cytosolic
312 LI:2173577.1:2001MAY17	67	75	forward 3	TM	Transmembrane
312 LI:2173577.1:2001MAY17	76	98	forward 3	TM	
312 LI:2173577.1:2001MAY17	99	193	forward 3	TM	Cytosolic
313 LI:2179256.1:2001MAY17	1	41	forward 2	TM	Cytosolic
313 LI:2179256.1:2001MAY17	42	64	forward 2	TM	Transmembrane
313 LI:2179256.1:2001MAY17	65	210	forward 2	TM	Non-Cytosolic
314 LI:2180388.1:2001MAY17	1	118	forward 2	TM	Non-Cytosolic
314 LI:2180388.1:2001MAY17	119	141	forward 2	TM	Transmembrane
314 LI:2180388.1:2001MAY17	142	215	forward 2	TM	Cytosolic
315 LI:2199713.8:2001MAY17	1	553	forward 2	TM	Non-Cytosolic
315 LI:2199713.8:2001MAY17	554	571	forward 2	TM	Transmembrane
315 LI:2199713.8:2001MAY17	572	590	forward 2	TM	Cytosolic
316 LI:2200587.2:2001MAY17	1	4	forward 1	TM	Cytosolic
316 LI:2200587.2:2001MAY17	5 ·	27	forward 1	TM	Transmembrane
316 LI:2200587.2:2001MAY17	28	36	forward 1	TM	Non-Cytosolic
316 LI:2200587.2:2001MAY17	37	56	forward 1	TM	Transmembrane
316 LI:2200587.2:2001MAY17	57	62	forward 1	TM	Cytosolic
316 LI:2200587.2:2001MAY17	63	85	forward 1	TM	Transmembrane
316 LI:2200587.2:2001MAY17	86	88	forward 1	TM	Non-Cytosolic
316 LI:2200587.2:2001MAY17	89	111	forward 1	TM	Transmembrane
316 LI:2200587.2:2001MAY17	112	119	forward 1	TM	Cytosolic
316 LI:2200587.2:2001MAY17	120	142	forward 1	TM	Transmembrane
316 LI:2200587.2:2001MAY17	143	146	forward 1		Non-Cytosolic
316 LI:2200587.2:2001MAY17	147	169	forward 1	TM	Transmembrane
316 LI:2200587.2:2001MAY17	170	176	·forward 1·		Cytosolic
· 316 LI:2200587.2:2001MAY17	1	22	forward 2	TM	Non-Cytosolic
316 LI:2200587.2:2001MAY17	23	45	forward 2	TM	Transmembrane
316 LI:2200587.2:2001MAY17	46	53	forward 2	TM	Cytosolic
316 LI:2200587.2:2001MAY17	54	76	forward 2	TM	Transmembrane
316 LI:2200587.2:2001MAY17	77	90	forward 2	TM	Non-Cytosolic
316 LI:2200587.2:2001MAY17	91	113	forward 2	TM	Transmembrane
316 LI:2200587.2:2001MAY17	114	125	forward 2	TM	Cytosolic
316 LI:2200587.2:2001MAY17	126	148	forward 2	TM	Transmembrane
316 LI:2200587.2:2001MAY17	149	176	forward 2	TM	Non-Cytosolic
316 LI:2200587.2:2001MAY17	1	14	forward 3	TM	Non-Cytosolic
316 LI:2200587.2:2001MAY17	15	37	forward 3	TM	Transmembrane
316 LI:2200587.2:2001MAY17	38	43	forward 3	TM	Cytosolic
316 LI:2200587.2:2001MAY17	44	63	forward 3	TM	Transmembrane
316 LI:2200587.2:2001MAY17	64	72	forward 3	TM	Non-Cytosolic
316 LI:2200587.2:2001MAY17	73	95	forward 3	TM	Transmembrane
316 LI:2200587.2:2001MAY17	96	101	forward 3	TM	Cytosolic
316 LI:2200587.2:2001MAY17	102	124	forward 3	TM	Transmembrane
316 LI:2200587.2;2001MAY17	125	143	forward 3	TM	Non-Cytosolic
316 LI:2200587.2:2001MAY17	144	166	forward 3	TM	Transmembrane
316 LI:2200587.2:2001MAY17	167	176	forward 3	TM	Cytosolic
317 LI:2200761.12:2001MAY17	1	3	forward 1	TM	Non-Cytosolic
317 LI:2200761.12:2001MAY17	4	26	forward 1	TM	Transmembrane
317 LI:2200761.12:2001MAY17	27	343	forward 1	TM	Cytosolic
317 LI:2200761.12:2001MAY17	344	366	forward 1	TM	Transmembrane
317 LI:2200761.12:2001MAY17	367	374	forward 1	TM	Non-Cytosolic
317 LI:2200761.12:2001MAY17	1	346	forward 2	·TM	Non-Cytosolic
	17	5			•

TABLE 2								
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology		
317	LI:2200761.12:2001MAY17	347	369	forward 2	TM	Transmembrane		
317	LI:2200761.12:2001MAY17	370	374	forward 2	TM	Cytosolic		
317	LI:2200761.12:2001MAY17	1	299	forward 3	TM	Non-Cytosolic		
317	LI:2200761.12:2001MAY17	300	322	forward 3	TM	Transmembrane		
317	LI:2200761.12:2001MAY17	323	342	forward 3	· TM	Cytosolic		
317	LI:2200761.12:2001MAY17	343	365	forward 3	TM	Transmembrane		
317	LI:2200761.12:2001MAY17	366	373	forward 3	TM	Non-Cytosolic		
318	LI:2203624.1:2001MAY17	1	139	forward 1	TM	Cytosolic		
318	LI:2203624.1:2001MAY17	140	156	forward 1	TM	Transmembrane		
. 318	LI:2203624.1:2001MAY17	157	226	forward 1	TM	Non-Cytosolic		
318	LI:2203624.1:2001MAY17	227	249	forward 1	TM	Transmembrane		
318	LI:2203624.1:2001MAY17	250	376	forward 1	TM	Cytosolic		
319	LI:220495.9:2001MAY17	1	40	forward 2	TM	Non-Cytosolic		
319	LI:220495.9:2001MAY17	41	63	forward 2	TM	Transmembrane		
319	LI:220495.9:2001MAY17	64	163	forward 2	TM	Cytosolic		
319	LI:220495.9:2001MAY17	164	183	forward 2	TM	Transmembrane		
319	LI:220495.9:2001MAY17	184	192	forward 2	TM	Non-Cytosolic		
319	LI:220495.9:2001MAY17	193	210	forward 2	TM	Transmembrane		
319	LI:220495.9:2001MAY17	211	247	forward 2	TM	Cytosolic		
319	LI:220495.9:2001MAY17	248	270	forward 2	TM	Transmembrane		
319	LI:220495.9:2001MAY17	271	284	forward 2	TM	Non-Cytosolic		
319	LI:220495.9:2001MAY17	285	307	forward 2	TM	Transmembrane		
319	LI:220495.9:2001MAY17	308	451	forward 2	TM	Cytosolic		
319	LI:220495.9:2001MAY17	452	474	forward 2	TM	Transmembrane		
319	LI:220495.9:2001MAY17	475	931	forward 2	TM	Non-Cytosolic		
, 319	LI:220495.9:2001MAY17	932	954	forward 2	TM	Transmembrane		
319	LI:220495.9:2001MAY17		973	forward 2	. TM	Cytosolic		
319	LI:220495.9:2001MAY17	974	996	forward 2	TM	Transmembrane		
319	LI:220495.9:2001MAY17	997	1034	forward 2	TM .	Non-Cytosolic		
319	LI:220495.9:2001MAY17	1	25	forward 3	TM	Non-Cytosolic		
319	LI:220495.9:2001MAY17	26	48	forward 3	TM	Transmembrane		
319	LI:220495.9:2001MAY17	49	453	forward 3	TM	Cytosolic		
319	LI:220495.9:2001MAY17	454	472	forward 3	TM	Transmembrane		
319	LI:220495.9:2001MAY17	473	491	forward 3	TM	Non-Cytosolic		
319	LI:220495.9:2001MAY17	492	514	forward 3	TM	Transmembrane		
319	LI:220495.9:2001MAY17	515	574	forward 3	TM	Cytosolic Transmembrane		
319	LI:220495.9:2001MAY17	575	597	forward 3	TM			
319	LI:220495.9:2001MAY17	598	606	forward 3	TM	Non-Cytosolic Transmembrane		
319	LI:220495.9:2001MAY17	607	629	forward 3	TM			
319	LI:220495.9:2001MAY17	630	931 954	forward 3	TM	Cytosolic Transmembrane		
319	LI:220495.9:2001MAY17	932		forward 3	TM TM	Non-Cytosolic		
319	LI:220495.9:2001MAY17	955 1	1033 28	forward 3 forward 1	TM	Non-Cytosolic		
320	LI:2205532.1:2001MAY17	29	28 51	forward 1	TM	Transmembrane		
320	LI:2205532.1:2001MAY17	52	70	forward 1	TM	Cytosolic		
320	LI:2205532.1:2001MAY17	71	90	forward 1	TM	Transmembrane		
320	LI:2205532.1:2001MAY17	91	99	forward 1	TM	Non-Cytosolic		
320	LI:2205532.1:2001MAY17	100	122	forward 1	TM	Transmembrane		
320	LI:2205532.1:2001MAY17	123	155	forward 1	TM	Cytosolic		
320	LI:2205532.1:2001MAY17	156	178	forward 1	TM	Transmembrane		
320	LI:2205532.1:2001MAY17	179	210	forward 1	TM	Non-Cytosolic		
320	LI:2205532.1:2001MAY17 LI:2205532.1:2001MAY17	211	230	forward 1	TM	Transmembrane		
320 320	LI:2205532.1:2001MAY17	231	250	forward 1	TM	Cytosolic		
320 320	LI:2205532.1:2001MAY17	251	273	forward 1	TM	Transmembrane		
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TABLE 2							
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology	
320	LI:2205532.1:2001MAY17	274	367	forward 1	TM	Non-Cytosolic	
320	LI:2205532.1:2001MAY17	368	390	forward 1	TM	Transmembrane	
320	LI:2205532.1:2001MAY17	391	407	forward 1	TM	Cytosolic	
320	LI:2205532.1:2001MAY17	1	30	forward 2	TM	Cytosolic	
320	LI:2205532.1:2001MAY17	31	53	forward <sub>.2</sub>	TM	Transmembrane	
320	LI:2205532.1:2001MAY17	54	96	forward 2	TM	Non-Cytosolic	
320	LI:2205532.1:2001MAY17	97	119	forward 2	TM	Transmembrane	
320	LI:2205532.1:2001MAY17	120	243	forward 2	TM	Cytosolic	
320	LI:2205532.1:2001MAY17	244	266	forward 2	TM	Transmembrane	
320	LI:2205532.1:2001MAY17	267	275	forward 2	TM	Non-Cytosolic	
320	LI:2205532.1:2001MAY17	276	293	forward 2	TM	Transmembrane	
320	LI:2205532.1:2001MAY17	294	406	forward 2	TM	Cytosolic	
320	LI:2205532.1:2001MAY17	1	35	forward 3	TM	Cytosolic	
320	LI:2205532.1:2001MAY17	36	58	forward 3	TM	Transmembrane	
320	LI:2205532.1:2001MAY17	59	82	forward 3	TM	Non-Cytosolic	
320	LI:2205532.1:2001MAY17	83	102	forward 3	TM	Transmembrane	
320	LI:2205532.1:2001MAY17	103	106	forward 3	TM	Cytosolic	
320	LI:2205532.1:2001MAY17	107	129	forward 3	TM	Transmembrane	
320	LI:2205532.1:2001MAY17	130	148	forward 3	TM	Non-Cytosolic	
320	LI:2205532.1:2001MAY17	149	171	forward 3	TM	Transmembrane	
320	LI:2205532,1:2001MAY17	172	244	forward 3	TM	Cytosolic	
320	LI:2205532.1:2001MAY17	245	267	forward 3	TM	Transmembrane	
320	LI:2205532.1:2001MAY17	268	406	forward 3	TM	Non-Cytosolic	
321	LI:2206277.1:2001MAY17	1	246	forward 1	TM	Cytosolic	
321	LI:2206277.1:2001MAY17	247	269	forward 1	TM	Transmembrane	
321	LI:2206277.1:2001MAY17	270	283	forward 1		Non-Cytosolic	
321	LI:2206277.1:2001MAY17	284	306	forward 1	TM	Transmembrane	
321	LI:2206277.1:2001MAY17	· 307	367	forward 1	TM	Cytosolic	
322	LI:2207765.8:2001MAY17	1	6	forward 3	TM ·	Cytosolic	
322	LI:2207765.8:2001MAY17	7	29	forward 3	TM	Transmembrane	
322	LI:2207765.8:2001MAY17	30	384	forward 3	TM	Non-Cytosolic	
323	LI:2208404.4:2001MAY17	1	44	forward 3	TM	Non-Cytosolic	
323	LI:2208404.4:2001MAY17	45	64	forward 3	TM	Transmembrane	
323	LI:2208404.4:2001MAY17	65	114	forward 3	TM	Cytosolic	
324	LI:2208715.3:2001MAY17	1	237	forward 1	TM	Cytosolic	
325	LI:2208766.2:2001MAY17	1	28	forward 1	TM	Non-Cytosolic	
325	LI:2208766.2:2001MAY17	29	48	forward 1	TM	Transmembrane	
325	LI:2208766,2:2001MAY17	49	272	forward 1	TM	Cytosolic	
325	LI:2208766.2:2001MAY17	273	295	forward 1	TM	Transmembrane	
325	LI:2208766.2:2001MAY17	296	309	forward 1	TM	Non-Cytosolic	
325	LI:2208766.2:2001MAY17	310	332	forward 1	TM	Transmembrane	
325	LI:2208766.2:2001MAY17	333	369	forward 1	TM	Cytosolic	
325	LI:2208766.2:2001MAY17	370	387	forward 1	TM	Transmembrane	
325	LI:2208766.2:2001MAY17	388	396	forward 1	TM	Non-Cytosolic	
325	LI:2208766.2:2001MAY17	397	419	forward 1	TM	Transmembrane	
325	LI:2208766.2:2001MAY17	420	535	forward 1	TM	Cytosolic	
325	LI:2208766.2:2001MAY17	536	558	forward 1	TM	Transmembrane	
325	LI:2208766.2:2001MAY17	559	577	forward 1	TM	Non-Cytosolic	
325	LI:2208766.2:2001MAY17	578	597	forward 1	TM	Transmembrane	
325	LI:2208766.2:2001MAY17	598	731	forward 1	TM	Cytosolic	
325	LI:2208766.2:2001MAY17	732	751	forward 1	TM	Transmembrane	
325	LI:2208766.2:2001MAY17	752	779	forward 1	TM	Non-Cytosolic	
325	LI:2208766.2:2001MAY17	780	802	forward 1	TM	Transmembrane	
325	LI:2208766.2:2001MAY17	803	835	forward 1	TM	Cytosolic	

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
325	LI:2208766.2:2001MAY17	1	43	forward 2	TM	Non-Cytosolic
325	LI:2208766.2:2001MAY17	44	66	forward 2	TM	Transmembrane
325	LI:2208766.2:2001MAY17	67	78	forward 2	TM	Cytosolic
325	LI:2208766.2:2001MAY17	79	101	forward 2	TM	Transmembrane
325	LI:2208766.2:2001MAY17	102	197	forward 2	TM	Non-Cytosolic
325	LI:2208766.2:2001MAY17	198	220	forward 2	TM	Transmembrane
325	LI:2208766.2:2001MAY17	221	272	forward 2	TM	Cytosolic
325	LI:2208766.2:2001MAY17	273	295	forward 2	TM	Transmembrane
325	LI:2208766.2:2001MAY17	296	309	forward 2	TM	Non-Cytosolic
325	LI:2208766.2:2001MAY17	310	332	forward 2	TM	Transmembrane
325	LI:2208766.2:2001MAY17	333	518	forward 2	TM	Cytosolic
325	LI:2208766.2:2001MAY17	519	541	forward 2	TM	Transmembrane
325	LI:2208766.2:2001MAY17	542	550	forward 2	TM	Non-Cytosolic
325	LI:2208766.2:2001MAY17	551	573	forward 2	TM	Transmembrane
325	LI:2208766.2:2001MAY17	574	690	forward 2	TM	Cytosolic
325	LI:2208766.2:2001MAY17	691	713	forward 2	TM	Transmembrane
325	LI:2208766.2:2001MAY17	714	727	forward 2	TM	Non-Cytosolic
325	LI:2208766.2:2001MAY17	728	750	forward 2	TM	Transmembrane
325	LI:2208766.2:2001MAY17	751	834	forward 2	TM	Cytosolic
325	LI:2208766.2:2001MAY17	1	267	forward 3	TM	Non-Cytosolic
325	LI:2208766.2:2001MAY17	268	290	forward 3	TM	Transmembrane
325	LI:2208766.2:2001MAY17	291	296	forward 3	TM	Cytosolic
325	LI:2208766.2:2001MAY17	297	319	forward 3	TM	Transmembrane
325	LI:2208766.2:2001MAY17	320	834	forward 3	TM	Non-Cytosolic
	LI:2209636.3:2001MAY17	1	154	forward 1	TM	Cytosolic
326	LI:2209636.3:2001MAY17	155	177	forward 1	TM	Transmembrane
·326	LI:2209636.3:2001MAY17	178	207	forward 1	TM	Non-Cytosolic
326	LI:2209636.3:2001MAY17	208	230	forward 1	TM .	Transmembrane
326	LI:2209636.3:2001MAY17	231	375	forward 1	TM	Cytosolic
326	LI:2209636.3:2001MAY17	376	395	forward 1	TM	Transmembrane
326	LI:2209636.3:2001MAY17	396	443	forward 1	TM	Non-Cytosolic
326	LI:2209636.3:2001MAY17	444	466	forward 1	TM	Transmembrane
326	LI:2209636.3:2001MAY17	467	472	forward 1	TM	Cytosolic
326	LI:2209636.3:2001MAY17	473	495	forward 1	TM	Transmembrane
326	LI:2209636.3:2001MAY17	496	498	forward 1	TM	Non-Cytosolic
326	LI:2209636.3:2001MAY17	499	521	forward 1	TM	Transmembrane
326	LI:2209636.3:2001MAY17	522	527	forward 1	TM	Cytosolic
326	LI:2209636.3:2001MAY17	528	550	forward 1	TM	Transmembrane
326	LI:2209636,3:2001MAY17	551	616	forward 1	TM	Non-Cytosolic
326	LI:2209636.3:2001MAY17	1	20	forward 3	TM	Cytosolic
326	LI:2209636.3:2001MAY17	21	43	forward 3	TM	Transmembrane
326	LI:2209636.3:2001MAY17	44	196	forward 3	TM	Non-Cytosolic
326	LI:2209636.3:2001MAY17	197	219	forward 3	TM	Transmembrane
326	LI:2209636.3:2001MAY17	220	319	forward 3	TM	Cytosolic
326	LI:2209636.3:2001MAY17	320	342	forward 3	TM	Transmembrane
326	LI:2209636.3:2001MAY17	343	425	forward 3	TM	Non-Cytosolic
326	LI:2209636.3:2001MAY17	426	448	forward 3	TM	Transmembrane
326	LI:2209636.3:2001MAY17	449	467	forward 3	TM	Cytosolic
326	LI:2209636.3:2001MAY17	468	490	forward 3	TM	Transmembrane
326	LI:2209636.3:2001MAY17	491	499	forward 3	TM	Non-Cytosolic
326	LI:2209636.3:2001MAY17	500	522	forward 3	TM	Transmembrane
326	LI:2209636.3:2001MAY17	523	616	forward 3	TM	Cytosolic
327		1	183	forward 1	TM	Cytosolic
327	LI:221864.68:2001MAY17	1	294	forward 3	TM	Non-Cytosolic
340	LI:229267.1:2001MAY17	179		ioi wafu 3	1 1/1	Mon-Cytosone

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SEQ D NO:	Template ID	S	tart	Stop	Frame	Domain Type	Topology
328	LI:229267.1:2001MAY17	2	95	317	forward 3	TM	Transmembrane
328	LI:229267.1:2001MAY17	3	18	570	forward 3	TM	Cytosolic
328	LI:229267.1:2001MAY17	5	71	593	forward 3	TM	Transmembrane
328	LI:229267.1:2001MAY17	5	94	927	forward 3	TM	Non-Cytosolic
. 329	LI:229648.2:2001MAY17		1	539	forward 2	TM	Non-Cytosolic
329	LI:229648.2:2001MAY17	5	40	562	forward 2	TM	Transmembrane
329	LI:229648.2:2001MAY17	5	63	751	forward 2	TM	Cytosolic
329	LI:229648.2:2001MAY17	7	52	774	forward 2	TM	Transmembrane
329	LI:229648.2:2001MAY17	7	75	779	forward 2	TM	Non-Cytosolic
329	LI:229648.2:2001MAY17	7	80	802	forward 2	TM	Transmembrane
329	LI:229648.2:2001MAY17		03	814	forward 2	TM	Cytosolic
329	LI:229648.2:2001MAY17		15	837	forward 2	TM	Transmembrane
329	LI:229648.2:2001MAY17		38	846	forward 2	TM	Non-Cytosolic
329	LI:229648.2:2001MAY17	8	47	869	forward 2	TM	Transmembrane
329	LI:229648.2:2001MAY17		70	891	forward 2	TM	Cytosolic
329	LI:229648.2:2001MAY17		1	657	forward 3	TM	Non-Cytosolic
329	LI:229648.2:2001MAY17	6	558	680	forward 3	TM	Transmembrane
329	LI:229648.2:2001MAY17	6	81	755	forward 3	TM	Cytosolic
329	LI:229648.2:2001MAY17		756	778	forward 3	TM	Transmembrane
329	LI:229648.2:2001MAY17		79	833	forward 3	TM	Non-Cytosolic
329	LI:229648.2:2001MAY17		34	856	forward 3	TM	Transmembrane
329	LI:229648.2:2001MAY17		357	891	forward 3	TM	Cytosolic
330	LI:231016.1:2001MAY17		1	14	forward 3	TM	Non-Cytosolic
330	LI:231016.1:2001MAY17	١,	15	37	forward 3	TM	Transmembrane
330	LI:231016.1:2001MAY17		38	57	forward 3	TM	Cytosolic
330	LI:231016.1:2001MAY17		58	80	forward 3	TM	Transmembrane
330	LI:231016.1:2001MAY17		81 .	84	forward 3	TM	Non-Cytosolic
330	LI:231016.1:2001MAY17	5.5	85	107	forward 3	TM	Transmembrane
330	LI:231016.1:2001MAY17	· · 1	108	201	forward 3	TM	Cytosolic
330	LI:231016.1:2001MAY17	2	202	224	forward 3	TM	Transmembrane
330	LI:231016.1:2001MAY17	2	225	360	forward 3	TM	Non-Cytosolic
331	LI:231140.5:2001MAY17		1	146	forward 2	TM	Non-Cytosolic
331	LI:231140.5:2001MAY17	1	147	169	forward 2	TM	Transmembrane
331	LI:231140.5:2001MAY17	1	170	223	forward 2	TM	Cytosolic
331	LI:231140.5:2001MAY17	2	224	246	forward 2	TM	Transmembrane
331	LI:231140.5:2001MAY17	2	247	250	forward 2	TM	Non-Cytosolic
331	LI:231140.5:2001MAY17		1	127	forward 3	TM	Cytosolic
331	LI:231140.5:2001MAY17	1	128	150	forward 3	TM	Transmembrane
331	LI:231140.5:2001MAY17	1	151	159	forward 3	TM	Non-Cytosolic
331	LI:231140.5:2001MAY17	]	160	178	forward 3	TM	Transmembrane
331	LI:231140.5:2001MAY17		179	249	forward 3	TM	Cytosolic
332	LI:231695.14:2001MAY17		1	148	forward 1	TM	Non-Cytosolic
332	LI:231695.14:2001MAY17	1	149	171	forward 1	TM	Transmembrane
332	LI:231695.14:2001MAY17		172	212	forward 1	TM	Cytosolic
333	LI:232846.24:2001MAY17		1	1167	forward 1	TM	Non-Cytosolic
333	LI:232846.24:2001MAY17	1	168	1187	forward 1	TM	Transmembrane
333	LI:232846.24:2001MAY17	1	188	1193	forward 1	TM	Cytosolic
333	LI:232846.24:2001MAY17	1	194	1216	forward 1	TM	Transmembrane
333	LI:232846.24:2001MAY17	1	217	1848	forward 1	TM	Non-Cytosolic
333	LI:232846.24:2001MAY17		1	1311	forward 2	TM	Non-Cytosolic
333	LI:232846.24:2001MAY17	1	312	1334	forward 2	TM	Transmembrane
333	LI:232846.24:2001MAY17	1	335	1449	forward 2	TM	Cytosolic
333	LI:232846.24:2001MAY17	1	450	1472	forward 2	TM	Transmembrane
333	LI:232846.24:2001MAY17	1	473	1848	forward 2	TM	Non-Cytosolic
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SEQ D NO	Template ID	Start	Stop	Frame	Domain Type	Topology
333	LI:232846.24:2001MAY17	1	906	forward 3	TM	Non-Cytosolic
333	LI:232846.24:2001MAY17	907	929	forward 3	TM	Transmembrane
333	LI:232846.24:2001MAY17	930	1166	forward 3	TM	Cytosolic
333	LI:232846.24:2001MAY17	1167	1189	forward 3	TM	Transmembrane
333	LI:232846.24:2001MAY17	· 1190	1848	forward 3	TM	Non-Cytosolic
334	LI:233411.11:2001MAY17	1	1003	forward 1	TM	Non-Cytosolic
334	LI:233411.11:2001MAY17	1004	1026	forward I	TM	Transmembrane
334	LI:233411.11:2001MAY17	1027	1055	forward 1	TM	Cytosolic
334	LI:233411.11:2001MAY17	1056	1078	forward 1	TM	Transmembrane
334	LI:233411.11:2001MAY17	1079		forward 1	TM	Non-Cytosolic
334	LI:233411.11:2001MAY17	1093	1115	forward 1	TM	Transmembrane
334	LI:233411.11:2001MAY17	1116	1236	forward 1	TM	Cytosolic
334	LI:233411.11:2001MAY17	1	261	forward 2	TM	Non-Cytosolic
334	LI:233411.11:2001MAY17	262	284	forward 2	TM	Transmembrane
334	LI:233411.11:2001MAY17	285	360	forward 2	TM	Cytosolic
334	LI:233411.11:2001MAY17	361	383	forward 2	TM	Transmembrane
334 ·	LI:233411.11:2001MAY17	384	1236	forward 2	TM	Non-Cytosolic
334	LI:233411.11:2001MAY17	1	345	forward 3	TM	Non-Cytosolic
334	LI:233411.11:2001MAY17	346	368	forward 3	TM	Transmembrane
334	LI:233411.11:2001MAY17	369	374	forward 3	TM	Cytosolic
	LI:233411.11:2001MAY17	375	397	forward 3	TM	Transmembrane
334 334		398	887	forward 3	TM	Non-Cytosolic
	LI:233411.11:2001MAY17 LI:233411.11:2001MAY17	888	910	forward 3	TM	Transmembrane
334	LI:233411.11:2001MA117 LI:233411.11:2001MAY17	911	922	forward 3	TM	Cytosolic
334	LI:233411.11:2001MAY17	923	945	forward 3	TM	Transmembrane
334		923	959	forward 3		
334	LI:233411.11:2001MAY17	940			TM	Non-Cytosolic Transmembrane
334	LI:233411.11:2001MAY17	983		forward 3 forward 3	TM TM	Cytosolic
334	LI:233411.11:2001MAY17					=
334	LI:233411.11:2001MAY17		1073	forward 3	TM	Transmembrane
334	LI:233411.11:2001MAY17	1074	1092	forward 3	TM	Non-Cytosolic
334	LI:233411.11:2001MAY17	1093	1115	forward 3	TM	Transmembrane
334	LI:233411.11:2001MAY17	1116		forward 3	TM	Cytosolic
334	LI:233411.11:2001MAY17	1127	1149	forward 3	TM	Transmembrane
334	LI:233411.11:2001MAY17	1150	1203	forward 3	TM	Non-Cytosolic
334	LI:233411.11:2001MAY17	1204	1223	forward 3	TM	Transmembrane
334	LI:233411.11:2001MAY17	1224	1235	forward 3	TM	Cytosolic
335	LI:233545.13:2001MAY17	1	506	forward 3	TM	Non-Cytosolic
335	LI:233545.13:2001MAY17	507	529	forward 3	TM	Transmembrane
335	LI:233545.13:2001MAY17	530	630	forward 3	TM	Cytosolic
336	LI:234671.101:2001MAY17	1	103	forward 1	TM	Cytosolic
336	LI:234671.101:2001MAY17	104	126	forward 1	TM	Transmembrane
336	LI:234671.101:2001MAY17	127	418	forward 1	TM	Non-Cytosolic
336	LI:234671.101:2001MAY17	1	288	forward 2	TM	Non-Cytosolic
336	LI:234671.101:2001MAY17	289	311	forward 2	TM	Transmembrane
336	LI:234671.101:2001MAY17	312	323	forward 2	TM	Cytosolic
336	LI:234671.101:2001MAY17	324	343	forward 2	TM	Transmembrane
336	LI:234671.101:2001MAY17	344	352	forward 2	TM	Non-Cytosolic
336	LI:234671.101:2001MAY17	353	375	forward 2	TM	Transmembrane
336	LI:234671.101:2001MAY17	376	418	forward 2	TM	Cytosolic
337	LI:236098.14:2001MAY17	1	34	forward 1	TM	Cytosolic
337	LI:236098.14:2001MAY17	35	57	forward 1	TM	Transmembrane
337	LI:236098.14:2001MAY17	58	71	forward 1	TM	Non-Cytosolic
337	LI:236098.14:2001MAY17	72	91	forward 1	TM	Transmembrane
337	LI:236098.14:2001MAY17	92	97	forward 1	TM	Cytosolic
		180				٠

SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
337	LI:236098.14:2001MAY17	98	117	forward 1	TM	Transmembrane
337	LI:236098.14:2001MAY17	118	127	forward 1	TM	Non-Cytosolic
337	LI:236098.14:2001MAY17	128	150	forward 1	TM	Transmembrane
337	LI:236098.14:2001MAY17	151	520	forward 1	TM	Cytosolic
337	LI:236098.14:2001MAY17	521	543	forward 1	TM	Transmembrane
337	LI:236098.14:2001MAY17	544	562	forward 1	TM	Non-Cytosolic
337	LI:236098.14:2001MAY17	563	585	forward 1	TM	Transmembrane
337	LI:236098.14:2001MAY17	586	591	forward 1	TM	Cytosolic
337	LI:236098.14:2001MAY17	592	614	forward 1	TM	Transmembrane
337	LI:236098.14:2001MAY17	615	628	forward 1	TM	Non-Cytosolic
337	LI:236098.14:2001MAY17	629	651	forward 1	TM	Transmembrane
337	LI:236098.14:2001MAY17	652	858	forward 1	TM	Cytosolic
337	LI:236098.14:2001MAY17	859	881	forward 1	TM	Transmembrane
337	LI:236098.14:2001MAY17	882	900	forward 1	TM	Non-Cytosolic
337	LI:236098.14:2001MAY17	901	923	forward 1	TM	Transmembrane
337	LI:236098.14:2001MAY17	924	976	forward 1	TM	Cytosolic
337	LI:236098.14:2001MAY17	977	999	forward 1	TM	Transmembrane
337	LI:236098.14:2001MAY17	1000	1008	forward 1	TM	Non-Cytosolic
337	LI:236098.14:2001MAY17	1009	1031	forward 1	Τ̈́M	Transmembrane
337	LI:236098.14:2001MAY17	1032	1051	forward 1	TM	Cytosolic
337	LI:236098.14:2001MAY17	1052	1074	forward 1	TM	Transmembrane
337	LI:236098.14:2001MAY17	1075	1088	forward 1	TM	Non-Cytosolic
337	LI:236098.14:2001MAY17	1089	1111	forward 1	TM	Transmembrane
337	LI:236098.14:2001MAY17	, 1112	1124	forward 1	, TM	Cytosolic
337	LI:236098.14:2001MAY17	. 1	19	forward 2	TM	Cytosolic
337	LI:236098.14:2001MAY17	20	39	forward 2	TM ·	Transmembrane
337	LI:236098.14:2001MAY17	- , 40	65	forward 2	TM	Non-Cytosolic
337	LI:236098.14:2001MAY17	66 -	-88	forward 2	. <b>TM</b>	Transmembrane
337	LI:236098.14:2001MAY17	89	133	forward 2	. TM	Cytosolic
337	LI:236098.14:2001MAY17	134	156	forward 2	TM	Transmembrane
337	LI:236098.14:2001MAY17	157	170	forward 2	TM	Non-Cytosolic
337	LI:236098.14:2001MAY17	171	188	forward 2	TM	Transmembrane
337	LI:236098.14:2001MAY17	189	215	forward 2	TM	Cytosolic
337	LI:236098.14:2001MAY17	216	235	forward 2	TM	Transmembrane
337	LI:236098.14:2001MAY17	236	244	forward 2	TM	Non-Cytosolic
337	LI:236098.14:2001MAY17	245	267	forward 2	TM	Transmembrane
337	LI:236098.14:2001MAY17	268	518	forward 2	TM	Cytosolic Transmembrane
337	LI:236098.14:2001MAY17	519 542	541 550	forward 2 forward 2	TM TM	Non-Cytosolic
337	LI:236098.14:2001MAY17 LI:236098.14:2001MAY17	551	573	forward 2	TM	Transmembrane
337	LI:236098.14:2001MAY17	574	593	forward 2	TM	Cytosolic
337	LI:236098.14:2001MAY17	594	616	forward 2		Transmembrane
337 337	LI:236098.14:2001MAY17	617	635	forward 2	TM	Non-Cytosolic
337	LI:236098.14:2001MAY17	636	658	forward 2	TM	Transmembrane
337	LI:236098.14:2001MAY17	659	799	forward 2	TM	Cytosolic
337	LI:236098.14:2001MAY17	800	822	forward 2	TM	Transmembrane
337	LI:236098.14:2001MAY17	823	1124	forward 2	TM	Non-Cytosolic
337	LI:236098.14:2001MAY17	1	66	forward 3	TM	Cytosolic
337	LI:236098.14:2001MAY17	67	89	forward 3	TM	Transmembrane
337	LI:236098.14:2001MAY17	90	159	forward 3	TM	Non-Cytosolic
337	LI:236098.14:2001MAY17	160	182	forward 3	TM	Transmembrane
337	LI:236098.14:2001MAY17	183	245	forward 3	TM	Cytosolic
337	LI:236098.14:2001MAY17	246	268	forward 3	TM	Transmembrane
337	LI:236098.14:2001MAY17	269	389	forward 3	TM	Non-Cytosolic
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		TABL	E 2			
SEQ D NO	: Template ID	Start	Stop	Frame	Domain Type	Topology
337	LI:236098.14:2001MAY17	390	412	forward 3	TM	Transmembrane
337	LI:236098.14:2001MAY17	413	528	forward 3	TM	Cytosolic
337	LI:236098.14:2001MAY17	529	551	forward 3	TM	Transmembrane
337	LI:236098.14:2001MAY17	552	565	forward 3	TM	Non-Cytosolic
337	LI:236098.14:2001MAY17	566	583	forward 3	· TM	Transmembrane
337	LI:236098.14:2001MAY17	584	587	forward 3	TM	Cytosolic
337	LI:236098.14:2001MAY17	588	610	forward 3	TM	Transmembrane
337	LI:236098.14:2001MAY17	611	1124	forward 3	TM	Non-Cytosolic
	LI:236196.15:2001MAY17	1	267	forward 1	TM	Cytosolic
338	LI:236196.15:2001MAY17	268	287	forward 1	TM	Transmembrane
338	LI:236196.15:2001MAY17	288	301	forward 1	TM	Non-Cytosolic
338		302	324	forward 1	TM	Transmembrane
338	LI:236196.15:2001MAY17	302	328	forward 1	TM	Cytosolic
338	LI:236196.15:2001MAY17	323	348	forward 1	TM	Transmembrane
338	LI:236196.15:2001MAY17			forward 1	TM	Non-Cytosolic
338	LI:236196.15:2001MAY17	349	500	forward 1	TM	Transmembrane
338	LI:236196.15:2001MAY17	501 524	523			
338	LI:236196.15:2001MAY17	524	589	forward 1	TM	Cytosolic Transmembrane
338	LI:236196.15:2001MAY17	590	612	forward 1	TM	
338	LI:236196.15:2001MAY17	613	613	forward 1	TM	Non-Cytosolic
338	LI:236196.15:2001MAY17	1	201	forward 2	TM	Cytosolic
338	LI:236196.15:2001MAY17	202	224	forward 2	TM	Transmembrane
338	LI:236196.15:2001MAY17	225	261	forward 2	TM	Non-Cytosolic
338	LI:236196.15:2001MAY17	262	281	forward 2	TM	Transmembrane
338	LI:236196.15:2001MAY17	282	300.	forward 2	TM	Cytosolic
338	LI:236196.15:2001MAY17	301	323	forward 2	TM	Transmembrane
338	LI:236196.15:2001MAY17	324	502	forward 2		Non-Cytosolic
338	LI:236196.15:2001MAY17	503	525	forward 2	TM	Transmembrane
338.	LI:236196.15:2001MAY17	526	545	forward 2	TM	Cytosolic
338	LI:236196.15:2001MAY17	546		forward 2	TM	Transmembrane
338	LI:236196.15:2001MAY17	569	613	forward 2	TM	Non-Cytosolic
338	LI:236196.15:2001MAY17	1	266	forward 3	TM	Cytosolic
338	LI:236196.15:2001MAY17	267	284	forward 3	TM	Transmembrane
338	LI:236196.15:2001MAY17	285	293	forward 3	TM	Non-Cytosolic
338	LI:236196.15:2001MAY17	294	316	forward 3	TM	Transmembrane
338	LI:236196.15:2001MAY17	317	483	forward 3	TM	Cytosolic
338	LI:236196.15:2001MAY17	484	506	forward 3	TM	Transmembrane
338	LI:236196.15:2001MAY17	507	558	forward 3	TM	Non-Cytosolic
338	LI:236196.15:2001MAY17	559	581	forward 3	TM	Transmembrane
338	LI:236196.15:2001MAY17	582	613	forward 3	TM	Cytosolic
339	LI:237086.1:2001MAY17	1	320	forward 2	TM	Non-Cytosolic
339	LI:237086.1:2001MAY17	321	343	forward 2	TM	Transmembrane
339	LI:237086.1:2001MAY17	344	379	forward 2	TM	Cytosolic
339	LI:237086.1:2001MAY17	1	182	forward 3	TM	Non-Cytosolic
339	LI:237086.1:2001MAY17	183	205	forward 3	TM	Transmembrane
339	LI:237086.1:2001MAY17	206	358	forward 3	TM	Cytosolic
339	LI:237086.1:2001MAY17	359	378	forward 3	TM	Transmembrane
339	LI:237086.1:2001MAY17	379	379	forward 3	TM	Non-Cytosolic
340	LI:238585.30:2001MAY17	1	108	forward 2	TM	Cytosolic
340	LI:238585.30:2001MAY17	109	131	forward 2	TM	Transmembrane
340	LI:238585.30:2001MAY17	132	134	forward 2	TM	Non-Cytosolic
340	LI:238585.30:2001MAY17	135	157	forward 2	TM.	Transmembrane
340	LI:238585.30:2001MAY17	158	183	forward 2	TM	Cytosolic
340	LI:238585.30:2001MAY17	1	41	forward 3	TM	Non-Cytosolic
340	LI:238585.30:2001MAY17	42	64	forward 3	TM	Transmembrane
		182				

#### TABLE 2 Stop Domain Type Topology SEQ D NO: Template ID Start Frame LI:238585.30:2001MAY17 65 102 forward 3 TM Cytosolic 340 Transmembrane 103 125 forward 3 TM LI:238585.30:2001MAY17 340 Non-Cytosolic 139 forward 3 TM 340 LI:238585.30:2001MAY17 126 Transmembrane 162 340 LI:238585.30:2001MAY17 140 forward 3 TM 183 forward 3 TM Cytosolic LI:238585.30:2001MAY17 163 340 228 forward 3 TM Non-Cytosolic 1 341 LI:238672.6:2001MAY17 Transmembrane 251 forward 3 341 LI:238672.6:2001MAY17 229 TM 279 Cytosolic 341 LI:238672.6:2001MAY17 252 forward 3 TM 301 forward 3 TM Transmembrane 341 LI:238672.6:2001MAY17 280 320 forward 3 TM Non-Cytosolic 341 LI:238672.6:2001MAY17 302 Transmembrane 343 forward 3 TM 341 LI:238672.6:2001MAY17 321 373 TM Cytosolic 341 LI:238672.6:2001MAY17 344 forward 3 342 LI:239579.9:2001MAY17 1 685 forward 1 TM Non-Cytosolic Transmembrane LI:239579.9:2001MAY17 686 708 forward 1 TM 342 736 forward 1 TM Cytosolic 709 342 LI:239579.9:2001MAY17 Cytosolic 62 forward 2 TM 342 LI:239579.9:2001MAY17 1 Transmembrane 63 85 forward 2 TM 342 LI:239579.9:2001MAY17 Non-Cytosolic 342 86 491 forward 2 TM LI:239579.9:2001MAY17 492 514 forward 2 TM Transmembrane 342 LI:239579.9:2001MAY17 515 687 forward 2 TM Cytosolic 342 LI:239579.9:2001MAY17 Transmembrane 688 710 forward 2 TM 342 LI:239579.9:2001MAY17 TM Non-Cytosolic LI:239579.9:2001MAY17 711 736 forward 2 342 489 forward 3 TM Non-Cytosolic 342 LI:239579.9:2001MAY17 1 490 512 forward 3... TM Transmembrane 342 LI:239579.9:2001MAY17 513 531 forward 3 TM Cytosolic 342 LI:239579.9:2001MAY17 342 532 554 forward 3 TM Transmembrane LI:239579.9:2001MAY17 Non-Cytosolic 342 LI:239579.9:2001MAY17 555 568 forward 3 TM 591 TM Transmembrane 342 LI:239579.9:2001MAY17 569 forward 3 592 685 forward 3 TM Cytosolic 342 LI:239579.9:2001MAY17 686 708 forward 3 TM Transmembrane 342 LI:239579.9:2001MAY17 709 735 forward 3 TM Non-Cytosolic 342 LI:239579.9:2001MAY17 Non-Cytosolic 986 forward 2 TM 1 343 LI:239720.1:2001MAY17 TM Transmembrane 987 1009 forward 2 343 LI:239720.1:2001MAY17 Cytosolic 1210 forward 2 TM 343 LI:239720.1:2001MAY17 1010 Non-Cytosolic 306 forward 3 TM 344 LI:240037.6:2001MAY17 1 Transmembrane 344 LI:240037.6:2001MAY17 307 329 forward 3 TM 330 346 forward 3 TM Cytosolic 344 LI:240037.6:2001MAY17 289 forward 2 TM Cytosolic 345 1 LI:243900.7:2001MAY17 290 309 forward 2 TM Transmembrane 345 LI:243900.7:2001MAY17 Non-Cytosolic 345 310 313 forward 2 TM LI:243900.7:2001MAY17 345 LI:243900.7:2001MAY17 314 336 forward 2 TM Transmembrane 345 LI:243900.7:2001MAY17 337 401 forward 2 TM Cytosolic 308 forward 3 TM Non-Cytosolic 345 1 LI:243900.7:2001MAY17 309 331 TM Transmembrane 345 LI:243900.7:2001MAY17 forward 3 400 TM Cytosolic 345 LI:243900,7:2001MAY17 332 forward 3 Non-Cytosolic 57 forward 1 TM 346 LI:244378.1:2001MAY17 1 TM Transmembrane 346 58 75 forward 1 LI:244378.1:2001MAY17 76 87 TM Cytosolic forward 1 346 LI:244378.1:2001MAY17

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LI:244378.1:2001MAY17

LI:244378.1:2001MAY17

LI:244378.1:2001MAY17

LI:244378.1:2001MAY17

LI:244378.1:2001MAY17

LI:244378.1:2001MAY17

110

119

142

160

178

826

forward 1

forward 1

forward 1

forward 1

forward 1

forward 1

TM

TM

TM

TM

TM

TM

Transmembrane

Non-Cytosolic

Transmembrane

Cytosolic

Transmembrane

Non-Cytosolic

		IABL				
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
346	LI:244378.1:2001MAY17	1	47	forward 2	TM	Non-Cytosolic
346	LI:244378.1:2001MAY17	48	70	forward 2	TM	Transmembrane
346	LI:244378.1:2001MAY17	71	101	forward 2	TM	Cytosolic
346	LI:244378.1:2001MAY17	102	124	forward 2	TM	Transmembrane
346	LI:244378.1:2001MAY17	125	258	forward 2	TM	Non-Cytosolic
346	LI:244378.1:2001MAY17	259	278	forward 2	TM.	Transmembrane
346	LI:244378.1:2001MAY17	279	538	forward 2	TM	Cytosolic
346	LI:244378.1:2001MAY17	539	561	forward 2	TM	Transmembrane
346	LI:244378.1:2001MAY17	562	826	forward 2	TM	Non-Cytosolic
346	LI:244378.1:2001MAY17	1	31	forward 3	TM	Non-Cytosolic
346	LI:244378.1:2001MAY17	32	54	forward 3	TM	Transmembrane
346	LI:244378.1:2001MAY17	55	85	forward 3	TM	Cytosolic
346	LI:244378.1:2001MAY17	86	105	forward 3	TM	Transmembrane
346	LI:244378.1:2001MAY17	106	825	forward 3	TM	Non-Cytosolic
347	LI:245500.3:2001MAY17	1	107	forward 1	TM	Cytosolic
347	LI:245500.3:2001MAY17	108	130	forward 1	TM	Transmembrane
347	LI:245500.3:2001MAY17	131	144	forward 1	TM	Non-Cytosolic
347	LI:245500.3:2001MAY17	145	167	forward 1	TM	Transmembrane
347	LI:245500.3:2001MAY17	168	232	forward 1	TM	Cytosolic
347	LI:245500.3:2001MAY17	233	255	forward 1	TM	Transmembrane
347	LI:245500.3:2001MAY17	256	267	forward 1	TM	Non-Cytosolic
347	LI:245500.3:2001MAY17	268	290	forward 1	TM	Transmembrane
347	LI:245500.3:2001MAY17	291	340	forward 1	TM	Cytosolic
347	LI:245500.3:2001MAY17	341	363	forward 1	TM	Transmembrane
347	LI:245500.3:2001MAY17	364	372	forward 1	TM .	Non-Cytosolic
. 347	LI:245500.3:2001MAY17	373	395	forward 1	TM	Transmembrane
347	LI:245500.3:2001MAY17	396	414	forward 1	TM	Cytosolic
347	LI:245500.3:2001MAY17	415	437	forward 1	TM	Transmembrane
347	LI:245500.3:2001MAY17	438	935	forward 1	TM	Non-Cytosolic
347	LI:245500.3:2001MAY17	936	958	forward 1	TM	Transmembrane
347	LI:245500.3:2001MAY17	959	1018	forward 1	TM	Cytosolic
347	LI:245500.3:2001MAY17	1019	1041	forward 1	TM	Transmembrane
347	LI:245500.3:2001MAY17	1042	1052	forward 1	TM	Non-Cytosolic
347	LI:245500.3:2001MAY17	1	19	forward 2	TM	Cytosolic
347	LI:245500.3:2001MAY17	20	39	forward 2	TM	Transmembrane
347	LI:245500.3:2001MAY17	40	48	forward 2	TM	Non-Cytosolic
347	LI:245500.3:2001MAY17	49	71	forward 2	TM	Transmembrane
347	LI:245500.3:2001MAY17	72	116	forward 2	TM	Cytosolic
347	LI:245500.3:2001MAY17	117	136	forward 2	TM	Transmembrane
347	LI:245500.3:2001MAY17	137	145	forward 2	TM	Non-Cytosolic Transmembrane
. 347	LI:245500.3:2001MAY17	146	168	forward 2	TM	Cytosolic
347	LI:245500.3:2001MAY17	169	243	forward 2	TM TM	Transmembrane
347	LI:245500.3:2001MAY17	244	266	forward 2	TM	Non-Cytosolic
347	LI:245500.3:2001MAY17	267	337	forward 2	TM	Transmembrane
347	LI:245500.3:2001MAY17	338	360 366	forward 2	TM	Cytosolic
347	LI:245500.3:2001MAY17	361		forward 2	TM	Transmembrane
347	LI:245500.3:2001MAY17 LI:245500.3:2001MAY17	367 390	389 392	forward 2 forward 2	TM	Non-Cytosolic
347	LI:245500.3:2001MAY17	390 393	410		TM	Transmembrane
347		393 411	410	forward 2	TM	Cytosolic
347	LI:245500.3:2001MAY17 LI:245500.3:2001MAY17	411	459	forward 2 forward 2	TM	Transmembrane
347 347		460	491	forward 2	TM	Non-Cytosolic
347	LI:245500.3:2001MAY17 LI:245500.3:2001MAY17	492	514	forward 2	TM	Transmembrane
347 347	LI:245500.3:2001MAY17	515	677	forward 2	TM	Cytosolic
347	L1.243300,3.20011VIA 1 1 /	213	0//	101 Walu Z	1 141	Cj.1030110

		TABI	E 2		•		
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SEQ D NO:		Start	Stop	Frame forward 2	Domain Type TM	Topology Transmembrane	
347	LI:245500.3:2001MAY17	678 701	700 727	forward 2	TM	Non-Cytosolic	
347	LI:245500.3:2001MAY17	701	750	forward 2	TM	Transmembrane	
347	LI:245500.3:2001MAY17	728 751	761	forward 2	TM	Cytosolic	
347	LI:245500.3:2001MAY17	762	784	forward 2	TM	Transmembrane	
347	LI:245500.3:2001MAY17	785	803	forward 2	TM	Non-Cytosolic	
347	LI:245500.3:2001MAY17 LI:245500.3:2001MAY17	804	826	forward 2	TM	Transmembrane	
347	LI:245500.3:2001MAY17	827	939	forward 2	TM	Cytosolic	
347 347	LI:245500.3:2001MAY17	940	959	forward 2	TM	Transmembrane	
347 347	LI:245500.3:2001MAY17	960		forward 2	TM	Non-Cytosolic	
347 347	LI:245500.3:2001MAY17	1	295	forward 3	TM	Non-Cytosolic	
347	LI:245500.3:2001MAY17	296	318	forward 3	TM	Transmembrane	
347	LI:245500.3:2001MAY17	319	329	forward 3	TM	Cytosolic	
347	LI:245500.3:2001MAY17	330	352	forward 3	TM	Transmembrane	
347	LI:245500.3:2001MAY17	353	386	forward 3	TM	Non-Cytosolic	
347	LI:245500.3:2001MAY17	387	409	forward 3	TM	Transmembrane	
347	LI:245500.3:2001MAY17	410	429	forward 3	TM	Cytosolic	
347	LI:245500.3:2001MAY17	430	452	forward 3	TM	Transmembrane	
347	LI:245500.3:2001MAY17	453	1052	forward 3	TM	Non-Cytosolic	
348	LI:245982.24:2001MAY17	1	748	forward 3	TM	Non-Cytosolic	
348	LI:245982.24:2001MAY17	749	771	forward 3	TM	Transmembrane	
348	LI:245982.24:2001MAY17	772	788	forward 3	TM	Cytosolic	
349	LI:246054.1:2001MAY17	1	214	forward 1	TM	Non-Cytosolic	
349	LI:246054.1:2001MAY17	215	237	forward 1	TM .		. :
349	LI:246054.1:2001MAY17	238	243	forward 1	TM	Cytosolic	
349	LI:246054.1:2001MAY17	244	266	forward 1	TM	Transmembrane	. (
349	LI:246054.1:2001MAY17	267	509	forward 1	TM	Non-Cytosolic	r Nife
349	LI:246054.1:2001MAY17	510	532	forward 1	TM	Transmemorane	
349	LI:246054.1:2001MAY17	533	627	forward 1	TM	Cytosolic	٠.
349	LI:246054.1:2001MAY17	1	257	forward 2	TM	Non-Cytosolic	
349	LI:246054.1:2001MAY17	258	280	forward 2	TM	Transmembrane	
349	LI:246054.1:2001MAY17	281	306	forward 2	TM	Cytosolic Transmembrane	
349	LI:246054.1:2001MAY17	307	329	forward 2	TM		
349	LI:246054.1:2001MAY17	330	627	forward 2	TM	Non-Cytosolic	
349	LI:246054.1:2001MAY17	1 507	506	forward 3 forward 3	TM TM	Non-Cytosolic Transmembrane	
349	LI:246054.1:2001MAY17	530	529 597	forward 3	TM	Cytosolic	
349	LI:246054.1:2001MAY17 LI:246054.1:2001MAY17	598	620	forward 3	TM	Transmembrane	
349	LI:246054.1:2001MAY17	621	627	forward 3	TM	Non-Cytosolic	
349 350	LI:256051.229:2001MAY17	1	229	forward 1	TM	Non-Cytosolic	
350	LI:256051.229:2001MAY17	230		· forward 1	TM	Transmembrane	
350	LI:256051.229:2001MAY17	253	257	forward 1	TM	Cytosolic	
350	LI:256051.229:2001MAY17	1	225	forward 2	TM	Cytosolic	
350	LI:256051.229:2001MAY17	226	248	forward 2	TM	Transmembrane	
350	LI:256051.229:2001MAY17	249	256	forward 2	TM	Non-Cytosolic	
351	LI:260629.7:2001MAY17	1	4	forward 1	TM	Cytosolic	
351	LI:260629.7:2001MAY17	5	27	forward 1	TM	Transmembrane	
351	LI:260629.7:2001MAY17	28	48	forward 1	TM	Non-Cytosolic	
351	LI:260629.7:2001MAY17	1	14	forward 2	TM	Non-Cytosolic	
351	LI:260629.7:2001MAY17	15	32	forward 2		Transmembrane	
351	LI:260629.7:2001MAY17	33	48	forward 2		Cytosolic	
352	LI:272723.1:2001MAY17	1	116	forward 2		Non-Cytosolic	
352	LI:272723.1:2001MAY17	117	139	forward 2	TM	Transmembrane	•
352	LI:272723.1:2001MAY17	140	255	forward 2	TM	Cytosolic	
		183	5		•		

		TABI	.E.2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
352	LI:272723.1:2001MAY17	256	278	forward 2	TM	Transmembrane
352	LI:272723.1:2001MAY17	279	287	forward 2	TM	Non-Cytosolic
353	LI:272766.1:2001MAY17	1	270	forward 3	TM	Non-Cytosolic
353	LI:272766.1:2001MAY17	271	293	forward 3	TM	Transmembrane
353	LI:272766.1:2001MAY17	294	318	forward 3	TM	Cytosolic
354	LI:275726.1:2001MAY17	1	197	forward 3	TM	Cytosolic
355	LI:276815.1:2001MAY17	1	20	forward 2	TM	Cytosolic
355	LI:276815.1:2001MAY17	21	43	forward 2	TM	Transmembrane
355	LI:276815.1:2001MAY17	44	199	forward 2	TM	Non-Cytosolic
355	LI:276815.1:2001MAY17	1	20	forward 3	TM	Cytosolic
355	LI:276815.1:2001MAY17	21	43	forward 3	TM	Transmembrane
355	LI:276815.1:2001MAY17	44	198	forward 3	TM	Non-Cytosolic
356	LI:283562.5:2001MAY17	1	289	forward 1	TM	Cytosolic
356	LI:283562.5:2001MAY17	290	312	forward 1	TM	Transmembrane
356	LI:283562.5:2001MAY17	313	1092	forward 1	TM	Non-Cytosolic
356	LI:283562.5:2001MAY17	1093	1115	forward 1	TM	Transmembrane
356	LI:283562.5:2001MAY17	1116	1125	forward 1	TM	Cytosolic
356	LI:283562.5:2001MAY17	1	1091	forward 3	TM	Non-Cytosolic
356	LI:283562.5:2001MAY17	1092	1114	forward 3	TM	Transmembrane
356	LI:283562.5:2001MAY17	1115	1124	forward 3	TM	Cytosolic
357	LI:289066.15:2001MAY17	1	175	forward 1	TM	Cytosolic
357	LI:289066.15:2001MAY17	176	198	forward 1	TM	Transmembrane
357	LI:289066.15:2001MAY17	199	925	forward 1	TM	Non-Cytosolic
357	LI:289066.15:2001MAY17	926	948	forward 1	TM	Transmembrane
357	LI:289066.15:2001MAY17	949	968	forward 1	TM	Cytosolic
357	LI:289066.15:2001MAY17	969	991	forward 1	TM	Transmembrane
357	LI:289066.15:2001MAY17	992	1022	forward 1	TM	Non-Cytosolic
357	LI:289066.15:2001MAY17	1023	1045	forward 1	TM	Transmembrane
357	LI:289066.15:2001MAY17	1046	1083	forward 1	TM	Cytosolic
357	LI:289066.15:2001MAY17	1	12	forward 2	TM	Cytosolic
357	LI:289066.15:2001MAY17	13	30	forward 2	TM	Transmembrane
357	LI:289066.15:2001MAY17	31	39	forward 2	TM	Non-Cytosolic
357	LI:289066.15:2001MAY17	40	59	forward 2	TM	Transmembrane
357	LI:289066.15:2001MAY17	60	189	forward 2	TM	Cytosolic
357	LI:289066.15:2001MAY17	190	212	forward 2	TM	Transmembrane
357	LI:289066.15:2001MAY17	213	226	forward 2	TM	Non-Cytosolic
357	LI:289066.15:2001MAY17	227	249	forward 2	TM	Transmembrane
357	LI:289066.15:2001MAY17	250	303	forward 2	TM	Cytosolic
357	LI:289066.15:2001MAY17	304	326	forward 2	TM	Transmembrane
357	LI:289066.15:2001MAY17	327	932	forward 2	TM	Non-Cytosolic
357	LI:289066.15:2001MAY17	933	955	forward 2	TM	Transmembrane
.357	LI:289066.15:2001MAY17	956	975	forward 2	TM	Cytosolic
357	LI:289066.15:2001MAY17	976	998	forward 2	TM	Transmembrane
357	LI:289066.15:2001MAY17	999	1026	forward 2 forward 2	TM	Non-Cytosolic Transmembrane
357	LI:289066.15:2001MAY17	1027	1049		TM	Cytosolic
357 357	LI:289066.15:2001MAY17	1050	1083	forward 2	TM	•
357 357	LI:289066.15:2001MAY17	l 01	90	forward 3 forward 3	TM	Cytosolic Transmembrane
357 357	LI:289066.15:2001MAY17	91 114	113		TM	
357 357	LI:289066.15:2001MAY17	114	174	forward 3	TM	Non-Cytosolic Transmembrane
357 357	LI:289066.15:2001MAY17	175	197	forward 3	TM	Cytosolic
357 357	LI:289066.15:2001MAY17	198 221	220 243	forward 3 forward 3	TM TM	Transmembrane
357 357	LI:289066.15:2001MAY17	244	24 <i>3</i> 833	forward 3	TM TM	Non-Cytosolic
357 357	LI:289066.15:2001MAY17 LI:289066.15:2001MAY17	834	856	forward 3	TM	Transmembrane
331	Li.207000,15,2001MA 1 17	196		TOT WATER 2	1 141	11anomentorane

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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
357	LI:289066.15:2001MAY17	857	975	forward 3	TM	Cytosolic
357	LI:289066.15:2001MAY17	976	998	forward 3	TM	Transmembrane
357	L1:289066.15:2001MAY17	999	1017	forward 3	TM	Non-Cytosolic
357	LI:289066.15:2001MAY17	1018	1040	forward 3	TM	Transmembrane
357	LI:289066.15:2001MAY17	1041	1083	forward 3	TM	Cytosolic
358	LI:331040.17:2001MAY17	1	207	forward 1	TM	Non-Cytosolic
358	LI:331040.17:2001MAY17	208	230	forward 1	TM	Transmembrane
358	LI:331040.17:2001MAY17	231	314	forward 1	TM	Cytosolic
358	LI:331040.17:2001MAY17	1	239	forward 3	TM	Non-Cytosolic
358	LI:331040.17:2001MAY17	240	262	forward 3	TM	Transmembrane
358	LI:331040.17:2001MAY17	263	282	forward 3	TM	Cytosolic
358	LI:331040.17:2001MAY17	283	305	forward 3	TM	Transmembrane
358	LI:331040.17:2001MAY17	306	313	forward 3	TM	Non-Cytosolic
359	LI:332414.5:2001MAY17	1	534	forward 1	TM	Non-Cytosolic
359	LI:332414.5:2001MAY17	535	557	forward 1	TM	Transmembrane
359	LI:332414.5:2001MAY17	558	574	forward 1	TM	Cytosolic
359	LI:332414.5:2001MAY17	1	167	forward 2	TM	Cytosolic
359	LI:332414.5:2001MAY17	168	190	forward 2	TM	Transmembrane
359	LI:332414.5:2001MAY17	191	574	forward 2	TM	Non-Cytosolic
359	LI:332414.5:2001MAY17	1	534	forward 3	TM	Non-Cytosolic
359 359	LI:332414.5:2001MAY17	535	557	forward 3	TM	Transmembrane
	LI:332414.5:2001MAY17	558	573	forward 3	TM	Cytosolic
359 360	LI:332730.16:2001MAY17	1	427	forward 1	TM	Cytosolic
	LI:332730.16:2001MAY17	428	450	forward 1	TM	Transmembrane
360		451	963	forward 1	TM	Non-Cytosolic
	LI:332730.16:2001MAY17	964	986	forward 1	· TM	Transmembrane
360	LI:332730.16:2001MAY17			forward 1	TM	Cytosolic
360	LI:332730.16:2001MAY17	987	1176	forward 1	TM	Transmembrane
360	LI:332730.16:2001MAY17	1177	1199			
360	LI:332730.16:2001MAY17	1200	1218	forward 1	TM TM	Non-Cytosolic
360	LI:332730.16:2001MAY17	1219	1241	forward 1	TM	Transmembrane
360	LI:332730.16:2001MAY17	1242	1328	forward 1	TM	Cytosolic
360	LI:332730.16:2001MAY17	1329	1351	forward 1	TM	Transmembrane
360	LI:332730.16:2001MAY17	1352	1383	forward 1	TM	Non-Cytosolic
360	LI:332730.16:2001MAY17	1384	1406	forward 1	TM	Transmembrane
360	LI:332730.16:2001MAY17	1407	1438	forward 1	TM	Cytosolic
360	LI:332730.16:2001MAY17	1439	1461	forward 1	TM	Transmembrane
360	LI:332730.16:2001MAY17	1462	1465	forward 1	TM	Non-Cytosolic
360	LI:332730.16:2001MAY17	1466	1485	forward 1	TM	Transmembrane
360	LI:332730.16:2001MAY17	1486	1516	forward 1	TM	Cytosolic
360	LI:332730.16:2001MAY17	1517		forward 1	TM	Transmembrane
360	LI:332730.16:2001MAY17	1540	1738	forward 1	TM	Non-Cytosolic
360	LI:332730.16:2001MAY17	1	951	forward 2	TM	Non-Cytosolic
360	LI:332730.16:2001MAY17	952	974	forward 2	TM	Transmembrane
360	LI:332730.16:2001MAY17	975	1175	forward 2	TM	Cytosolic
360	LI:332730.16:2001MAY17	1176	1198	forward 2	TM	Transmembrane
360	LI:332730.16:2001MAY17	1199	1217	forward 2	TM	Non-Cytosolic
360	LI:332730.16:2001MAY17	1218	1240		TM	Transmembrane
360	LI:332730.16:2001MAY17	1241	1531		TM	Cytosolic
360	LI:332730.16:2001MAY17	1532	1554		TM	Transmembrane
360	LI:332730.16:2001MAY17	1555	1618		TM	Non-Cytosolic
360	LI:332730.16:2001MAY17	1619	1638	forward 2	TM	Transmembrane
360	LI:332730.16:2001MAY17	1639	1649		TM	Cytosolic
360	LI:332730.16:2001MAY17	1650	1672	forward 2	TM	Transmembrane
360	LI:332730.16:2001MAY17	1673		forward 2	TM	Non-Cytosolic
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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
360	LI:332730.16:2001MAY17	1707	1724	forward 2	TM	Transmembrane
360	LI:332730.16:2001MAY17	1725	1738	forward 2	TM	Cytosolic
360	LI:332730.16:2001MAY17	1	952	forward 3	TM	Non-Cytosolic
360	LI:332730.16:2001MAY17	953	975	forward 3	TM	Transmembrane
360	LI:332730.16:2001MAY17	976	1120	forward 3	· TM	Cytosolic
. 360	LI:332730.16:2001MAY17	1121	1143	forward 3	TM	Transmembrane
360	LI:332730.16:2001MAY17	1144	1146	forward 3	TM	Non-Cytosolic
360	LI:332730.16:2001MAY17	1147	1169	forward 3	TM	Transmembrane
360	LI:332730.16:2001MAY17	1170	1175	forward 3	TM	Cytosolic
360	LI:332730.16:2001MAY17	1176	1198	forward 3	TM	Transmembrane
360	LI:332730.16:2001MAY17	1199	1217	forward 3	TM	Non-Cytosolic
360	LI:332730.16:2001MAY17	1218	1240	forward 3	TM	Transmembrane
360	LI:332730.16:2001MAY17	1241	1447	forward 3	TM	Cytosolic
360	LI:332730.16:2001MAY17	1448	1470	forward 3	TM	Transmembrane
360	LI:332730.16:2001MAY17	1471	1479	forward 3	· TM	Non-Cytosolic
360	LI:332730.16:2001MAY17	1480	1499	forward 3	TM	Transmembrane
360	LI:332730.16:2001MAY17	1500	1519	forward 3	TM	Cytosolic
360	LI:332730.16:2001MAY17	1520	1542	forward 3	TM	Transmembrane
360	LI:332730.16:2001MAY17	1543	1738	forward 3	TM	Non-Cytosolic
361	LI:333849.21:2001MAY17	1	188	forward 1	· TM	Cytosolic
362	LI:337038.15:2001MAY17	1	660	forward 1	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	661	683	forward 1	TM	Transmembrane
362	LI:337038.15:2001MAY17	684	793	forward 1	TM	Cytosolic
362	LI:337038.15:2001MAY17	794	816	forward 1	TM	Transmembrane
362	LI:337038.15:2001MAY17	817	928	forward 1	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	929	951	forward 1	TM	Transmembrane
362	LI:337038.15:2001MAY17	952	957	forward 1	TM	Cytosolic
362	LI:337038.15:2001MAY17	958	980	forward 1	TM	Transmembrane
. 362	LI:337038.15:2001MAY17	981	989	forward 1	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	990	1009	forward 1	TM	Transmembrane
. 362	LI:337038.15:2001MAY17	1010	1029	forward 1	TM	Cytosolic
362	LI:337038.15:2001MAY17	1030	1052	forward 1	TM	Transmembrane
362	LI:337038.15:2001MAY17	1053	1119	forward 1	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	1120	1142	forward 1	TM	Transmembrane
362	LI:337038.15:2001MAY17	1143	1174	forward 1	TM	Cytosolic
362	LI:337038.15:2001MAY17	1175	1197	forward 1	TM	Transmembrane
362	LI:337038.15:2001MAY17	1198	1211	forward 1	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	1212	1231	forward 1	TM	Transmembrane
362	LI:337038.15:2001MAY17	1232	1357	forward 1	TM	Cytosolic
362	LI:337038.15:2001MAY17	1358	1380	forward 1	TM	Transmembrane
362	LI:337038.15:2001MAY17	1381	1394	forward 1	TM·	Non-Cytosolic
362	LI:337038.15:2001MAY17	1395	1417	forward 1	TM	Transmembrane
362	LI:337038.15:2001MAY17	1418	1429	forward 1	TM	Cytosolic
362	LI:337038.15:2001MAY17	1430	1452	forward 1	TM	Transmembrane
362	LI:337038.15:2001MAY17	1453	1515	forward 1	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	1516	1538	forward 1	TM	Transmembrane
362	L1:337038.15:2001MAY17	1539	1550	forward 1	TM	Cytosolic
362	LI:337038.15:2001MAY17	1551	1573	forward 1	TM	Transmembrane
362	LI:337038.15:2001MAY17	1574	1582	forward 1	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	1583	1601	forward 1	TM	Transmembrane
362	LI:337038.15:2001MAY17	1602	1656	forward 1	TM	Cytosolic
362	LI:337038.15:2001MAY17	1657	1679	forward 1	TM	Transmembrane
362	LI:337038.15:2001MAY17	1680	1698	forward 1	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	1699	1721	forward 1	TM	Transmembrane
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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
362	LI:337038.15:2001MAY17	1722	1749	forward 1	TM	Cytosolic
362	LI:337038.15:2001MAY17	1	660	forward 2	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	661	683	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	684	703	forward 2	TM	Cytosolic
362	LI:337038.15:2001MAY17	704	721	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	722	735	forward 2	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	736	758	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	759	764	forward 2	TM	Cytosolic
362	LI:337038.15:2001MAY17	765	785	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	786	804	forward 2	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	805	827	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	828	839	forward 2	TM	Cytosolic
362	LI:337038.15:2001MAY17	840	862	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	863	935	forward 2	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	936	953	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	954	959	forward 2	TM	Cytosolic
362	LI:337038.15:2001MAY17	960	982	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	983	1027	forward 2	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	1028	1050	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	1051	1095	forward 2	TM	Cytosolic
362	LI:337038.15:2001MAY17	1096	1118	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	1119		forward 2	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	1133	1152	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	1153	1325	forward 2	TM	Cytosolic
362	LI:337038.15:2001MAY17.	1326	1345	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	1346	1359	forward 2	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	1360.	1382	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	1383	1401	forward 2	TM	Cytosolic
362	LI:337038.15:2001MAY17	1402	1424	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	1425	1438	forward 2	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	1439	1461	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	1462	1467	forward 2	TM	Cytosolic
362	LI:337038.15:2001MAY17	1468	1487	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	1488	1491	forward 2	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	1492	1509	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	1510	1515	forward 2	TM	Cytosolic
362	LI:337038.15:2001MAY17	1516	1538	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	1539	1552	forward 2	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	1553	1575	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	1576		forward 2	TM	Cytosolic
362	LI:337038.15:2001MAY17	1611	1633	forward 2	TM	Transmembrane
362	LI:337038.15:2001MAY17	1634	1749	forward 2	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	1	206	forward 3	TM	Cytosolic
362	LI:337038.15:2001MAY17	207	229	forward 3	TM	Transmembrane
362	LI:337038.15:2001MAY17	230	764	forward 3	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	765	787	forward 3	TM	Transmembrane
362	LI:337038.15:2001MAY17	788	942	forward 3	TM	Cytosolic
362	LI:337038.15:2001MAY17	943	965	forward 3	TM	Transmembrane
362	LI:337038.15:2001MAY17	966	1030	forward 3	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	1031	1050	forward 3	TM	Transmembrane
362	LI:337038.15:2001MAY17	1051		forward 3	TM	Cytosolic
362	LI:337038.15:2001MAY17	1173	1192	forward 3	TM	Transmembrane
362	LI:337038.15:2001MAY17	1193		forward 3	TM	Non-Cytosolic
362	LI:337038.15:2001MAY17	1243	1265	forward 3	TM	Transmembrane
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TABLE 2							
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology	
362	LI:337038.15:2001MAY17	1266	1393	forward 3	TM	Cytosolic	
362	LI:337038.15:2001MAY17	1394	1416	forward 3	TM	Transmembrane	
362	LI:337038.15:2001MAY17	1417	1430	forward 3	TM	Non-Cytosolic	
362	LI:337038.15:2001MAY17	1431	1453	forward 3	TM	Transmembrane	
362	LI:337038.15:2001MAY17	1454	1472	forward 3	TM	Cytosolic	
362	LI:337038.15:2001MAY17	1473	1495	forward 3	TM	Transmembrane	
362	LI:337038.15:2001MAY17	1496	1516	forward 3	TM	Non-Cytosolic	
362	LI:337038.15:2001MAY17	1517	1539	forward 3	TM	Transmembrane	
362	LI:337038.15:2001MAY17	1540	1551	forward 3	TM	Cytosolic	
362	LI:337038.15:2001MAY17	1552	1574	forward 3	TM	Transmembrane	
362	LI:337038.15:2001MAY17	1575	1607	forward 3	TM	Non-Cytosolic	
362	LI:337038.15:2001MAY17	1608	1630	forward 3	TM	Transmembrane	
362	LI:337038.15:2001MAY17	1631	1749	forward 3	TM	Cytosolic	
363	LI:337606.6:2001MAY17	1	73	forward 1	TM	Cytosolic	
363	LI:337606.6:2001MAY17	74	96	forward 1	TM	Transmembrane	
363	LI:337606.6:2001MAY17	97	210	forward 1	TM	Non-Cytosolic	
363	LI:337606.6:2001MAY17	1	168	forward 3	TM	Cytosolic	
363	LI:337606.6:2001MAY17	169	191	forward 3	TM	Transmembrane	
363	LI:337606.6:2001MAY17	192	209	forward 3	TM	Non-Cytosolic	
364	LI:338032.10:2001MAY17	1	4	forward 1	TM	Non-Cytosolic	
364	LI:338032.10:2001MAY17	5	27	forward 1	TM	Transmembrane	
364	LI:338032.10:2001MAY17	28	131	forward 1	TM	Cytosolic	
365	LI:339265.16:2001MAY17	1	1231	forward 1	TM	Non-Cytosolic	
365	LI:339265.16:2001MAY17	1232	1254	forward 1	TM	Transmembrane	
365	LI:339265.16:2001MAY17	1255	1274	forward 1	TM	Cytosolic	
365	LI:339265.16:2001MAY17	1	224	forward 3	TM	Non-Cytosolic	
365	LI:339265.16:2001MAY17	225	247	forward 3	TM .	Transmembrane	
, 365	LI:339265.16:2001MAY17	248	341	forward 3	TM	Cytosolic	
365	LI:339265.16:2001MAY17	342	364	forward 3	TM	Transmembrane	
365	LI:339265.16:2001MAY17	365	1274	forward 3	TM	Non-Cytosolic	
366	LI:344646.4:2001MAY17	1	452	forward 1	TM	Non-Cytosolic	
366	LI:344646.4:2001MAY17	453	475	forward 1	TM	Transmembrane	
366	LI:344646.4:2001MAY17	476	598	forward 1	TM	Cytosolic	
366	LI:344646.4:2001MAY17	1	104	forward 2	TM	Cytosolic	
366	LI:344646.4:2001MAY17	105	127	forward 2	TM	Transmembrane	
366	LI:344646.4:2001MAY17	128	141	forward 2	TM	Non-Cytosolic	
366	LI:344646.4:2001MAY17	142	164	forward 2	TM	Transmembrane	
366	LI:344646.4:2001MAY17	165	250	forward 2	TM	Cytosolic	
366	L1:344646.4:2001MAY17	251	273	forward 2	TM	Transmembrane	
366	LI:344646.4:2001MAY17	274	598	forward 2	TM	Non-Cytosolic	
366	LI:344646.4:2001MAY17	1	289	forward 3	TM	Cytosolic	
366	LI:344646.4:2001MAY17	290	312	forward 3	TM	Transmembrane	
366	LI:344646.4:2001MAY17	313	345	forward 3	TM	Non-Cytosolic	
366	LI:344646.4:2001MAY17	346	365	forward 3	TM	Transmembrane	
366	LI:344646.4:2001MAY17	366	523	forward 3	TM	Cytosolic	
366	LI:344646.4:2001MAY17	524	546	forward 3	TM	Transmembrane	
366	LI:344646.4:2001MAY17	547	598	forward 3	TM	Non-Cytosolic	
367	LI:347393.7:2001MAY17	1	384	forward 2	TM	Non-Cytosolic	
367	LI:347393.7:2001MAY17	385	407	forward 2	TM	Transmembrane	
367	LI:347393.7:2001MAY17	408	449	forward 2	TM	Cytosolic	
368	LI:348107.36:2001MAY17	141	140	forward 2	TM	Non-Cytosolic	
368	LI:348107.36:2001MAY17	141	163	forward 2	TM	Transmembrane	
368 360	LI:348107.36:2001MAY17	164 1	166 196	forward 2 forward 1	TM TM	Cytosolic Non-Cytosolic	
369	LI:351120.6:2001MAY17	190		ioi waru 1	TM	Non-Cytosone	

		TABI	LE 2			•
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
369	LI:351120.6:2001MAY17	197	219	forward 1	TM	Transmembrane
369	LI:351120.6:2001MAY17	220	303	forward 1	TM	Cytosolic
369	LI:351120.6:2001MAY17	304	326	forward 1	TM	Transmembrane
369	LI:351120.6:2001MAY17	327	357	forward 1	TM	Non-Cytosolic
369	LI:351120.6:2001MAY17	358	380	forward 1	TM	Transmembrane
369	LI:351120.6:2001MAY17	381	392	forward 1	TM	Cytosolic
369.	LI:351120.6:2001MAY17	393	415	forward 1	TM	Transmembrane
369	LI:351120.6:2001MAY17	416	458	forward 1	TM	Non-Cytosolic
369	LI:351120.6:2001MAY17	459	481	forward 1	TM	Transmembrane
369	LI:351120.6:2001MAY17	482	554	forward 1	TM	Cytosolic
369	LI:351120.6:2001MAY17	555	577	forward 1	TM	Transmembrane
369	LI:351120.6:2001MAY17	578	586	forward 1	TM	Non-Cytosolic
369	LI:351120.6:2001MAY17	587	609	forward 1	TM	Transmembrane
369	LI:351120.6:2001MAY17	610	737	forward 1	TM	Cytosolic
369	LI:351120.6:2001MAY17	738	760	forward 1	TM	Transmembrane
369	LI:351120.6:2001MAY17	761	1098	forward 1	TM	Non-Cytosolic
369	LI:351120.6:2001MAY17	1	270	forward 2	TM	Non-Cytosolic
369	LI:351120.6:2001MAY17	271	290	forward 2	TM	Transmembrane
369	LI:351120.6:2001MAY17	291	344	forward 2	TM	Cytosolic
369	LI:351120.6:2001MAY17	345	367	forward 2	TM	Transmembrane
369	LI:351120.6:2001MAY17	368	381	forward 2	TM	Non-Cytosolic
369	LI:351120.6:2001MAY17	382	404	forward 2	TM	Transmembrane
369	LI:351120.6:2001MAY17	405	416	forward 2	TM	Cytosolic
369	LI:351120.6:2001MAY17	417	434	forward 2	TM ·	Transmembrane
369	LI:351120.6:2001MAY17	435	448	forward 2	. TM	Non-Cytosolic
· 369	LI:351120.6:2001MAY17	449	471	forward 2	TM	Transmembrane
369	LI:351120.6:2001MAY17	472	491	forward 2	TM.	Cytosolic
369	LI:351120.6:2001MAY17	492	511	forward 2	TM	Transmembrane
369	LI:351120.6:2001MAY17	512	525	forward 2	TM	Non-Cytosolic
369	LI:351120.6:2001MAY17	526	548	forward 2	TM	Transmembrane
369	LI:351120.6:2001MAY17	549	641	forward 2	TM	Cytosolic
369	LI:351120.6:2001MAY17	642	664	forward 2	TM	Transmembrane
369	LI:351120.6:2001MAY17	665	698	forward 2	TM	Non-Cytosolic
369	LI:351120.6:2001MAY17	699	721	forward 2	TM	Transmembrane
369	LI:351120.6:2001MAY17	722	737	forward 2	TM	Cytosolic
369	LI:351120.6:2001MAY17	738	760	forward 2	TM <sup>·</sup>	Transmembrane
369	LI:351120.6:2001MAY17	761	1098	forward 2	TM	Non-Cytosolic
369	LI:351120.6:2001MAY17	1	87	forward 3	TM	Cytosolic
369	LI:351120.6:2001MAY17	88	107	forward 3	TM	Transmembrane
369	LI:351120.6:2001MAY17	. 108	121	forward 3	TM	Non-Cytosolic
369	LI:351120.6:2001MAY17	122	141	forward 3	TM	Transmembrane
369	LI:351120.6:2001MAY17	142	309	forward 3	TM	Cytosolic
369	LI:351120.6:2001MAY17	310	329	forward 3	TM	Transmembrane
369	LI:351120.6:2001MAY17	330	357	forward 3	TM	Non-Cytosolic
369	LI:351120.6:2001MAY17	358	380	forward 3	TM	Transmembrane
369	LI:351120.6:2001MAY17	381	392	forward 3	TM	Cytosolic
369	LI:351120.6:2001MAY17	393	415	forward 3	TM	Transmembrane
369	LI:351120.6:2001MAY17	416	1097	forward 3	TM	Non-Cytosolic
370	LI:358762.41:2001MAY17	1	177	forward 1	TM	Non-Cytosolic
370	LI:358762.41:2001MAY17	178	200	forward 1	TM	Transmembrane
370	LI:358762.41:2001MAY17	201	206	forward 1	TM	Cytosolic
370	LI:358762.41:2001MAY17	207	229	forward 1	TM	Transmembrane
370	LI:358762.41:2001MAY17	230	561	forward 1	TM	Non-Cytosolic
370	LI:358762.41:2001MAY17	1 191	160	forward 2	TM	Cytosolic
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	•	TABL	F 2			
0E0 D NO	T day ID			Enne	Domain Type	Tanalanı
SEQ D NO:	Template ID		Stop	Frame		Topology
370	LI:358762.41:2001MAY17	161	183	forward 2	TM	Transmembrane
370	LI:358762.41:2001MAY17	184	216	forward 2	TM	Non-Cytosolic Transmembrane
370	LI:358762.41:2001MAY17	217	239	forward 2 forward 2	TM	
370	LI:358762.41:2001MAY17	240	441		TM	Cytosolic
370	LI:358762.41:2001MAY17	442	464	forward 2	TM	Transmembrane
370	LI:358762.41:2001MAY17	465	561	forward 2	TM	Non-Cytosolic
370	LI:358762.41:2001MAY17	1	14	forward 3	TM	Non-Cytosolic
370	LI:358762.41:2001MAY17	15	37	forward 3	TM	Transmembrane
370	LI:358762.41:2001MAY17	38	172	forward 3	TM	Cytosolic
370	LI:358762.41:2001MAY17	173	195	forward 3	TM	Transmembrane
370	LI:358762.41:2001MAY17	196	209	forward 3	TM	Non-Cytosolic
370	LI:358762.41:2001MAY17	210	229	forward 3	TM	Transmembrane
370	LI:358762.41:2001MAY17	230	433	forward 3	TM	Cytosolic
370	LI:358762.41:2001MAY17	434	453	forward 3	TM	Transmembrane
370	LI:358762.41:2001MAY17	454	472	forward 3	TM	Non-Cytosolic
370	LI:358762.41:2001MAY17	473	495	forward 3	TM	Transmembrane
370	LI:358762.41:2001MAY17	496	560	forward 3	TM	Cytosolic
371	LI:363003.48:2001MAY17	1	192	forward 3	TM	Non-Cytosolic
371	LI:363003.48:2001MAY17	193	215	forward 3	TM	Transmembrane
371	LI:363003.48:2001MAY17	216	256	forward 3	TM	Cytosolic
371	LI:363003.48:2001MAY17	257	279	forward 3	TM	Transmembrane
371	LI:363003.48:2001MAY17	280	288	forward 3	TM	Non-Cytosolic
371	LI:363003.48:2001MAY17	289	311	forward 3	TM	Transmembrane
371	LI:363003.48:2001MAY17	312	323	forward 3	•	Cytosolic
371	LI:363003.48:2001MAY17	324		forward 3	TM	Transmembrane
371	LI:363003.48:2001MAY17	347		forward 3	TM	Non-Cytosolic
372	LI:370899.6:2001MAY17	1	523		TM	Non-Cytosolic
372	LI:370899.6:2001MAY17	524	546	forward 1	TM	Transmembrane
372	LI:370899.6:2001MAY17	547	579	forward 1	•	Cytosolic
372	LI:370899.6:2001MAY17	580	602	forward 1	TM	Transmembrane
372	LI:370899.6:2001MAY17	603	621	forward 1	TM	Non-Cytosolic
372	LI:370899.6:2001MAY17	622	644	forward 1	TM	Transmembrane
372	LI:370899.6:2001MAY17	645	664	forward 1	TM	Cytosolic
372	LI:370899.6:2001MAY17	665	687	forward 1	TM	Transmembrane
372	LI:370899.6:2001MAY17	688	1216	forward 1	TM	Non-Cytosolic
372	L1:370899.6:2001MAY17	1	553	forward 2	TM	Non-Cytosolic
372	LI:370899.6:2001MAY17	554	576	forward 2	TM	Transmembrane
372	LI:370899.6:2001MAY17	577	617		TM	Cytosolic
372	LI:370899.6:2001MAY17	618	640	forward 2	TM	Transmembrane
372	LI:370899.6:2001MAY17	641	659	forward 2	TM	Non-Cytosolic
372	LI:370899.6:2001MAY17	660	682	forward 2	TM	Transmembrane
372	LI:370899.6:2001MAY17	683	711	forward 2	TM	Cytosolic
372	LI:370899.6:2001MAY17	712	734	forward 2	TM	Transmembrane
372	LI:370899.6:2001MAY17	735	1216	forward 2	TM	Non-Cytosolic
372	LI:370899.6:2001MAY17	1	522	forward 3	TM	Non-Cytosolic
372	LI:370899.6:2001MAY17	523	545	forward 3	TM	Transmembrane
372	LI:370899.6:2001MAY17	546	714	forward 3	TM	Cytosolic
372	LI:370899.6:2001MAY17	715	737	forward 3	TM	Transmembrane
372	LI:370899.6:2001MAY17	738	1215	forward 3	TM	Non-Cytosolic
373	LI:376470.1:2001MAY17	1	126	forward 3	TM	Cytosolic
373	LI:376470.1:2001MAY17	127	149	forward 3	TM	Transmembrane
373	LI:376470.1:2001MAY17	150	180	forward 3	TM	Non-Cytosolic
374	LI:400961.18:2001MAY17	1	303	forward 1	TM	Non-Cytosolic
374	LI:400961.18:2001MAY17	304	326	forward 1	TM	Transmembrane
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		TABI	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
374	LI:400961.18:2001MAY17	327	489	forward 1	TM	Cytosolic
374	LI:400961.18:2001MAY17	490	512	forward 1	TM	Transmembrane
374	LI:400961.18:2001MAY17	513	607	forward 1	TM	Non-Cytosolic
374	LI:400961.18:2001MAY17	1	186	forward 3	TM	Non-Cytosolic
374	LI:400961.18:2001MAY17	187	206	forward 3	TM	Transmembrane
374	LI:400961.18:2001MAY17	207	210	forward 3	TM	Cytosolic
374	LI:400961.18:2001MAY17	211	233	forward 3	TM	Transmembrane
374	LI:400961.18:2001MAY17	234	606	forward 3	TM	Non-Cytosolic
375	LI:404482.20:2001MAY17	1	421	forward 1	TM	Non-Cytosolic
375	LI:404482.20:2001MAY17	422	444	forward 1	TM	Transmembrane
3.75	LI:404482.20:2001MAY17	445	653	forward 1	TM	Cytosolic
375	LI:404482.20:2001MAY17	654	676	forward 1	TM	Transmembrane
375	LI:404482.20:2001MAY17	677	719	forward 1	TM	Non-Cytosolic
375	LI:404482.20:2001MAY17	720	742	forward 1	TM	Transmembrane
375	LI:404482.20:2001MAY17	743	1018	forward 1	TM	Cytosolic
375	LI:404482.20:2001MAY17	1019	1038	forward 1	TM	Transmembrane
375	LI:404482.20:2001MAY17	1039	1052	forward 1	TM	Non-Cytosolic
375	LI:404482.20:2001MAY17	1053	1075	forward 1	TM	Transmembrane
375	LI:404482.20:2001MAY17	1076	1081	forward 1	TM	Cytosolic
375	LI:404482.20:2001MAY17	1082	1100	forward 1	TM	Transmembrane
375	LI:404482.20:2001MAY17	1101	1201	forward 1	TM	Non-Cytosolic
375	LI:404482.20:2001MAY17	1	250	forward 2	TM	Cytosolic
375	LI:404482.20:2001MAY17	251	273	forward 2	TM	Transmembrane
375	LI:404482.20:2001MAY17	274	1041	101	TM	Non-Cytosolic
375	LI:404482.20:2001MAY17	1042	1061	forward 2		Transmembrane
375	LI:404482.20:2001MAY17	1062	1201	forward 2	TM	Cytosolic
375 375	LI:404482.20:2001MAY17	1	930 953	forward 3	TM	Non-Cytosolic
375 375	LI:404482.20:2001MAY17 LI:404482.20:2001MAY17	931 954	1016	forward 3 forward 3	TM TM	Transmembrane
375 375	LI:404482.20:2001MAY17	1017	1016	forward 3	TM	Cytosolic
375 375	LI:404482.20:2001MAY17	1017	1039	forward 3	TM	Transmembrane Non-Cytosolic
375 375	LI:404482.20:2001MAY17	1040	1071	forward 3	TM	Transmembrane
375	LI:404482.20:2001MAY17	1072	1102	forward 3	TM	Cytosolic
375	LI:404482.20:2001MAY17	1103	1125	forward 3	TM	Transmembrane
375	LI:404482.20:2001MAY17	1126	1200	forward 3	TM	Non-Cytosolic
376	LI:405985.1:2001MAY17	1	364	forward 1	TM	Non-Cytosolic
376	LI:405985.1:2001MAY17	365	387	forward 1	TM	Transmembrane
376	LI:405985.1:2001MAY17	388	424	forward 1	TM	Cytosolic
376	LI:405985.1:2001MAY17	1	64	forward 2	TM	Cytosolic
376	LI:405985.1:2001MAY17	65	87	forward 2	TM	Transmembrane
376	LI:405985.1:2001MAY17	88	424	forward 2	TM	Non-Cytosolic
377	LI:406389.1:2001MAY17	1	37	forward 2	TM	Cytosolic
377	LI:406389.1:2001MAY17	38	60	forward 2	TM	Transmembrane
377	LI:406389.1:2001MAY17	61	160	forward 2	TM	Non-Cytosolic
377	LI:406389.1:2001MAY17	161	183	forward 2	TM	Transmembrane
377	LI:406389.1:2001MAY17	184	199	forward 2	TM	Cytosolic
377	LI:406389.1:2001MAY17	200	222	forward 2	TM	Transmembrane
377	LI:406389.1:2001MAY17	223	622	forward 2	TM	Non-Cytosolic
378	LI:406833.1:2001MAY17	1	448	forward 1	TM	Non-Cytosolic
378	LI:406833.1:2001MAY17	449	471	forward 1	TM	Transmembrane
378	LI:406833.1:2001MAY17	472	500	forward 1	TM	Cytosolic
378	LI:406833.1:2001MAY17	501	523	forward 1	TM	Transmembrane
378	LI:406833.1:2001MAY17	524	975	forward 1	TM	Non-Cytosolic
378	LI:406833.1:2001MAY17	1	902	forward 2	TM	Non-Cytosolic
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		TABI	Æ2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
378	LI:406833.1:2001MAY17	903	925	forward 2	TM	Transmembrane
378	LI:406833.1:2001MAY17	926	945	forward 2	TM	Cytosolic
378	LI:406833.1:2001MAY17	946	968	forward 2	TM	Transmembrane
378	LI:406833.1:2001MAY17	969	975	forward 2	TM	Non-Cytosolic
378	LI:406833.1:2001MAY17	1	901	forward 3	· TM	Non-Cytosolic
378	LI:406833.1:2001MAY17	902	924	forward 3	TM	Transmembrane
378	LI:406833.1:2001MAY17	925	943	forward 3	TM	Cytosolic
378	LI:406833.1:2001MAY17	944	961	forward 3	TM	Transmembrane
378	LI:406833.1:2001MAY17	962	975	forward 3	TM	Non-Cytosolic
378 379	LI:407921.3:2001MAY17	1	1805	forward 2	TM	Non-Cytosolic
379	LI:407921.3:2001MAY17	1806	1828	forward 2	TM	Transmembrane
379	LI:407921.3:2001MAY17	1829	1863	forward 2	TM	Cytosolic
380	LI:409078.54:2001MAY17	1	28	forward 3	TM	Non-Cytosolic
380	LI:409078.54:2001MAY17	29	51	forward 3	TM	Transmembrane
380	LI:409078.54:2001MAY17	52	80	forward 3	TM	Cytosolic
380	LI:409078.54:2001MAY17	81	103	forward 3	TM	Transmembrane
380	LI:409078.54:2001MAY17	104	1242	forward 3	TM	Non-Cytosolic
381	LI:423601.6:2001MAY17	1	314	forward 3	TM	Non-Cytosolic
381	LI:423601.6:2001MAY17	315	337	forward 3	TM	Transmembrane
381	LI:423601.6:2001MAY17	338	345	forward 3	TM	Cytosolic
381	LI:423601.6:2001MAY17	346	364	forward 3	TM	Transmembrane
381	LI:423601.6:2001MAY17	365	378	forward 3	TM	Non-Cytosolic
381	LI:423601.6:2001MAY17	379	401	forward 3	TM	Transmembrane
381	LI:423601.6:2001MAY17	402	414	forward 3	TM	Cytosolic
	LI:425024.5:2001MAY17	1	173	forward 2	TM	Non-Cytosolic
382	LI:425024.5:2001MAY17	174	196	forward 2	TM	Transmembrane
382	LI:425024.5:2001MAY17	197	215	forward 2	TM	Cytosolic
382	LI:425024.5:2001MAY17	216	238	forward 2	TM	Transmembrane
382	LI:425024.5:2001MAY17	239	242	forward 2	TM	Non-Cytosolic
382	LI:425024.5:2001MAY17	243	260	forward 2	TM	Transmembrane
382	LI:425024.5:2001MAY17	261	266	forward 2	TM	Cytosolic
382	LI:425024.5:2001MAY17	267	289	forward 2	TM	Transmembrane
382	LI:425024.5:2001MAY17	290	583	forward 2	TM	Non-Cytosolic
383	LI:427909.29:2001MAY17	1	252	forward 1	TM	Non-Cytosolic
383	LI:427909.29:2001MAY17	253	275	forward 1	TM	Transmembrane
383	LI:427909.29:2001MAY17	276	463	forward 1	TM	Cytosolic
383	LI:427909.29:2001MAY17	464	483	forward 1	TM	Transmembrane
383	LI:427909.29:2001MAY17	484	545	forward 1	TM	Non-Cytosolic
383	LI:427909.29:2001MAY17	546	568	forward 1	TM	Transmembrane
383	LI:427909.29:2001MAY17	569	580	forward 1	TM	Cytosolic
383	LI:427909.29:2001MAY17	581	603	forward 1	TM	Transmembrane
383	LI:427909.29:2001MAY17	604	617	forward 1	TM	Non-Cytosolic
383	LI:427909.29:2001MAY17	618	637	forward 1	TM	Transmembrane
383	LI:427909.29:2001MAY17	638	657	forward 1	TM	Cytosolic
383	LI:427909.29:2001MAY17	658	680	forward 1	TM	Transmembrane
383	LI:427909.29:2001MAY17	681	725	forward 1	TM	Non-Cytosolic
383	LI:427909.29:2001MAY17	726	748	forward 1	TM	Transmembrane
383	LI:427909.29:2001MAY17	749	780	forward 1	TM	Cytosolic
383	LI:427909.29:2001MAY17	781	803	forward 1	TM	Transmembrane
383	LI:427909.29:2001MAY17	804	858	forward 1	TM	Non-Cytosolic
383	LI:427909.29:2001MAY17	859	881	forward 1	TM	Transmembrane
383	LI:427909.29:2001MAY17	882	1201	forward 1	TM	Cytosolic
383	LI:427909.29:2001MAY17	1202	1224	forward 1	TM	Transmembrane
383	LI:427909.29:2001MAY17	1225		forward 1	TM	Non-Cytosolic
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TABLE 2							
SEQ D NO: Template ID	Start	Stop	Frame	Domain Type	Topology		
383 LI:427909.29:2001MAY17	1	283	forward 2	TM	Non-Cytosolic		
383 LI:427909.29:2001MAY17	284	306	forward 2	TM	Transmembrane		
383 LI:427909.29:2001MAY17	307	318	forward 2	TM	Cytosolic		
383 LI:427909.29:2001MAY17	319	341	forward 2	TM	Transmembrane		
383 LI:427909.29:2001MAY17	342	460	forward 2	TM	Non-Cytosolic		
383 LI:427909.29:2001MAY17	461	483	forward 2	TM	Transmembrane		
383 LI:427909.29:2001MAY17	484	582	forward 2	TM	Cytosolic		
383 LI:427909.29:2001MAY17	583	605	forward 2	TM	Transmembrane		
383 LI:427909.29:2001MAY17	606	624	forward 2	TM	Non-Cytosolic		
383 LI:427909.29:2001MAY17	625	642	forward 2	TM	Transmembrane		
383 LI:427909.29:2001MAY17	643	662	forward 2	TM	Cytosolic		
383 LI:427909.29:2001MAY17	663	685	forward 2	TM	Transmembrane		
383 LI:427909.29:2001MAY17	686	688	forward 2	TM	Non-Cytosolic		
383 LI:427909.29:2001MAY17	689	711	forward 2	TM	Transmembrane		
383 LI:427909.29:2001MAY17	712	729	forward 2	TM	Cytosolic		
383 LI:427909.29:2001MAY17	730	752	forward 2	TM	Transmembrane		
383 LI:427909.29:2001MAY17	753	780	forward 2	TM	Non-Cytosolic		
383 LI:427909.29:2001MAY17	781	803	forward 2	TM	Transmembrane		
383 LI:427909.29:2001MAY17	804	929	forward 2	TM	Cytosolic		
383 LI:427909.29:2001MAY17	930	949	forward 2	TM	Transmembrane		
383 LI:427909.29:2001MAY17	950	1254	forward 2	TM	Non-Cytosolic		
383 LI:427909.29:2001MAY17	1	319	forward 3	TM	Cytosolic		
383 LI:427909.29:2001MAY17	320	339	forward 3	TM	Transmembrane		
383 LI:427909.29:2001MAY17	340	622	forward 3	TM	Non-Cytosolic		
383 LI:427909.29:2001MAY17	623	640	forward 3	TM	Transmembrane		
383 LI:427909.29:2001MAY17	641	675	forward 3	TM	Cytosolic		
383 LI:427909.29:2001MAY17	676	698	forward 3	TM	Transmembrane		
383 LI:427909.29:2001MAY17	699	728	forward 3	TM	Non-Cytosolic		
383 LI:427909.29:2001MAY17	729	751	forward 3	TM	Transmembrane		
383 LI:427909.29:2001MAY17	752	833	forward 3	TM	Cytosolic		
383 LI:427909.29:2001MAY17	834	856	forward 3	TM	Transmembrane		
383 LI:427909.29:2001MAY17	857	1254	forward 3	TM	Non-Cytosolic		
384 LI:428198.20:2001MAY17	1	171	forward 2	TM	Cytosolic		
384 LI:428198.20:2001MAY17	172	194	forward 2	TM	Transmembrane		
384 LI:428198.20:2001MAY17	195	820	forward 2	TM	Non-Cytosolic		
384 LI:428198.20:2001MAY17	821	840	forward 2	TM	Transmembrane		
384 LI:428198.20:2001MAY17	841	860	forward 2	TM	Cytosolic		
384 LI:428198.20:2001MAY17	861	883	forward 2	TM	Transmembrane		
384 LI:428198.20:2001MAY17	884	892	forward 2	TM	Non-Cytosolic		
384 LI:428198.20:2001MAY17	893	915	forward 2	TM	Transmembrane		
384 LI:428198.20:2001MAY17	916	958	forward 2	TM	Cytosolic		
384 LI:428198.20:2001MAY17	1	910	forward 3	TM	Non-Cytosolic		
384 LI:428198.20:2001MAY17	911	933	forward 3	TM	Transmembrane		
384 LI:428198.20:2001MAY17	934	958	forward 3	TM	Cytosolic		
385 LI:429738.6:2001MAY17	1	19	forward 1	TM	Cytosolic		
385 LI:429738.6:2001MAY17	20	42	forward 1	TM	Transmembrane		
385 LI:429738.6:2001MAY17	43	45	forward 1	TM ·	Non-Cytosolic		
385 LI:429738.6:2001MAY17	46	63	forward 1	TM	Transmembrane		
385 LI:429738.6:2001MAY17	64	343	forward 1	TM	Cytosolic		
385 LI:429738.6:2001MAY17	344	366	forward 1	TM	Transmembrane		
385 LI:429738.6:2001MAY17	367	380	forward 1	TM	Non-Cytosolic		
385 LI:429738.6:2001MAY17	381	403	forward 1	TM	Transmembrane		
385 LI:429738.6:2001MAY17	404	416	forward 1	TM	Cytosolic		
385 LI:429738.6:2001MAY17	1	19	forward 2	TM	Non-Cytosolic		
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		TABI	.E 2			
SEQ D NO	Template ID	Start	Stop	Frame	Domain Type	Topology
385	LI:429738.6:2001MAY17	20	42	forward 2	TM	Transmembrane
385	LI:429738.6:2001MAY17	43	336	forward 2	TM	Cytosolic
385	LI:429738.6:2001MAY17	337	359	forward 2	TM	Transmembrane
385	LI:429738.6:2001MAY17	360	363	forward 2	TM	Non-Cytosolic
385	LI:429738.6:2001MAY17	364	386	forward 2	TM	Transmembrane
385	LI:429738.6:2001MAY17	387	392	forward 2	TM	Cytosolic
385	LI:429738.6:2001MAY17	393	415	forward 2	TM	Transmembrane
385	LI:429738.6:2001MAY17	416	416	forward 2	TM	Non-Cytosolic
385	LI:429738.6:2001MAY17	1	19	forward 3	TM	Cytosolic
385	LI:429738.6:2001MAY17	20	42	forward 3	TM	Transmembrane
385	LI:429738.6:2001MAY17	43	333	forward 3	TM	Non-Cytosolic
385	LI:429738.6:2001MAY17	334	356	forward 3	TM	Transmembrane
385	LI:429738.6:2001MAY17	357	360	forward 3	TM	Cytosolic
385	LI:429738.6:2001MAY17	361	383	forward 3	TM	Transmembrane
385	LI:429738.6:2001MAY17	384	387	forward 3	TM	Non-Cytosolic
385	LI:429738.6:2001MAY17	388	410	forward 3	TM	Transmembrane
385	LI:429738.6:2001MAY17	411	415	forward 3	TM	Cytosolic
386	LI:449437.1:2001MAY17	1	73	forward 2	TM	Cytosolic
386	LI:449437.1:2001MAY17	74	96	forward 2	TM	Transmembrane
386	LI:449437.1:2001MAY17	97	115	forward 2	TM	Non-Cytosolic
386	LI:449437.1:2001MAY17	116	133	forward 2	TM	Transmembrane
386	LI:449437.1:2001MAY17	134	237	forward 2	TM	Cytosolic
386	LI:449437.1:2001MAY17	238	260	forward 2	TM	Transmembrane
386	LI:449437.1:2001MAY17	261	279	forward 2	TM	Non-Cytosolic
387	LI:459269.25:2001MAY17		326	forward 2	TM	Non-Cytosolic
387		327		forward 2	TM	Transmembrane
387	LI:459269.25:2001MAY17	350	640	forward 2	TM	Cytosolic
388	L1:464206.1:2001MAY17	1	80	forward 2	TM	Cytosolic
388	LI:464206.1:2001MAY17	· 81	103	forward 2	TM	Transmembrane
388	LI:464206.1:2001MAY17	104	942	forward 2	TM	Non-Cytosolic
388	LI:464206.1:2001MAY17	1	694	forward 3	TM	Non-Cytosolic
388	LI:464206.1:2001MAY17	695	717	forward 3	TM	Transmembrane
388	LI:464206.1:2001MAY17	718	723	forward 3	TM	Cytosolic
388	LI:464206.1:2001MAY17	724	746	forward 3	TM	Transmembrane
388	LI:464206.1:2001MAY17	747	942	forward 3	TM	Non-Cytosolic
389	LI:465821.2:2001MAY17	1	446	forward 1	TM	Non-Cytosolic
389	LI:465821.2:2001MAY17	447	466	forward 1	TM	Transmembrane
389	LI:465821.2:2001MAY17	467	477	forward 1	TM	Cytosolic
389	LI:465821.2:2001MAY17	478	500	forward 1	TM	Transmembrane
389	LI:465821.2:2001MAY17	501	654	forward 1	TM	Non-Cytosolic
389	LI:465821.2:2001MAY17	1	439	forward 2	TM	Non-Cytosolic
389	LI:465821.2:2001MAY17	440	459	forward 2	TM	Transmembrane
389	LI:465821.2:2001MAY17	460	470	forward 2	TM	Cytosolic
3́89	LI:465821.2:2001MAY17	471	493	forward 2	TM	Transmembrane
389	LI:465821.2:2001MAY17	494	653	forward 2	TM	Non-Cytosolic
389	LI:465821.2:2001MAY17	1	469	forward 3	TM	Non-Cytosolic
389	LI:465821.2:2001MAY17	470	492	forward 3	TM	Transmembrane
389	LI:465821.2:2001MAY17	493	653	forward 3	TM	Cytosolic
390	LI:474414.28:2001MAY17	1	349	forward 1	TM	Non-Cytosolic
390	LI:474414.28:2001MAY17	350	372	forward 1	TM	Transmembrane
390	LI:474414.28:2001MAY17	373	391	forward 1	TM	Cytosolic
390	LI:474414.28:2001MAY17	392	414	forward 1	TM	Transmembrane
. 390	LI:474414.28:2001MAY17	415	1028	forward 1	TM	Non-Cytosolic
390	LI:474414.28:2001MAY17	1029	1051	forward 1	TM	Transmembrane
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		TABI	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
390	LI:474414.28:2001MAY17	1052	1133	forward 1	TM	Cytosolic
390	LI:474414.28:2001MAY17	1134	1156	forward 1	TM	Transmembrane
390	LI:474414.28:2001MAY17	1157	1405	forward 1	TM	Non-Cytosolic
390	LI:474414.28:2001MAY17	1	12	forward 2	TM	Cytosolic
390	LI:474414.28:2001MAY17	13	35	forward 2	TM	Transmembrane
390	LI:474414.28:2001MAY17	36	44	forward 2	TM	Non-Cytosolic
390	LI:474414.28:2001MAY17	45	67	forward 2	TM	Transmembrane
390	LI:474414.28:2001MAY17	68	437	forward 2	TM	Cytosolic
390	LI:474414.28:2001MAY17	438	457	forward 2	TM	Transmembrane
390	LI:474414.28:2001MAY17	458	466	forward 2	TM	Non-Cytosolic
390	LI:474414.28:2001MAY17	467	489	forward 2	TM	Transmembrane
390	LI:474414.28:2001MAY17	490	501	forward 2	TM	Cytosolic
390	LI:474414.28:2001MAY17	502	521	forward 2	TM	Transmembrane
390	LI:474414.28:2001MAY17	522	1405	forward 2	TM	Non-Cytosolic
390	LI:474414.28:2001MAY17	1	302	forward 3	TM	Non-Cytosolic
390	LI:474414.28:2001MAY17	303	325	forward 3	TM	Transmembrane
390	LI:474414.28:2001MAY17	326	345	forward 3	TM	Cytosolic
390	LI:474414.28:2001MAY17	346	368	forward 3	TM	Transmembrane
390	LI:474414.28:2001MAY17	369	394	forward 3	TM	Non-Cytosolic
390	LI:474414.28:2001MAY17	395	417	forward 3	TM	Transmembrane
390	LI:474414.28:2001MAY17	418	437	forward 3	TM	Cytosolic
390	LI:474414.28:2001MAY17	438	455	forward 3	TM	Transmembrane
390	LI:474414.28:2001MAY17	456	467	forward 3	TM	Non-Cytosolic
390	LI:474414.28:2001MAY17	468	490	forward 3	TM	Transmembrane
. 390	LI:474414.28:2001MAY17	491	496	forward 3	TM	Cytosolic
390	LI:474414.28:2001MAY17	497	514	forward 3	TM	Transmembrane
390	LI:474414.28:2001MAY17	515	629	forward 3	TM	Non-Cytosolic
390	LI:474414.28:2001MAY17	630	652	forward 3	TM	Transmembrane
390	LI:474414.28:2001MAY17	653	920	forward 3	TM	Cytosolic -
390	LI:474414.28:2001MAY17	921	943	forward 3	TM	Transmembrane
390	LI:474414.28:2001MAY17	944	1027	forward 3	TM	Non-Cytosolic
390	LI:474414.28:2001MAY17	1028	1050	forward 3	TM	Transmembrane
390	LI:474414.28:2001MAY17	1051	1259	forward 3	TM	Cytosolic
390	LI:474414.28:2001MAY17	1260	1282	forward 3	TM	Transmembrane
390	LI:474414.28:2001MAY17	1283	1296	forward 3	TM	Non-Cytosolic
390	LI:474414.28:2001MAY17	1297	1316	forward 3	TM	Transmembrane
390	LI:474414.28:2001MAY17	1317	1405	forward 3	TM	Cytosolic
391	LI:474435.14:2001MAY17	1	137	forward 2	TM	Non-Cytosolic
391	LI:474435.14:2001MAY17	138	160	forward 2	TM	Transmembrane
391	LI:474435.14:2001MAY17	161	180	forward 2	TM	Cytosolic
391	LI:474435.14:2001MAY17	181	203	forward 2	TM	Transmembrane
391	LI:474435.14:2001MAY17	204	472	forward 2	TM	Non-Cytosolic
391	LI:474435.14:2001MAY17	473	495	forward 2	TM	Transmembrane
391	LI:474435.14:2001MAY17	496	542	forward 2	TM	Cytosolic
391	LI:474435.14:2001MAY17	543	565	forward 2	TM	Transmembrane
391	LI:474435.14:2001MAY17	566	1160	forward 2	TM	Non-Cytosolic
392	LI:474458.11:2001MAY17	1	3	forward 1	TM	Non-Cytosolic
392	LI:474458.11:2001MAY17	4	21	forward 1	TM	Transmembrane
392	LI:474458.11:2001MAY17	22	203	forward 1	TM	Cytosolic
392	LI:474458.11:2001MAY17	204	226	forward 1	TM	Transmembrane
392	LI:474458.11:2001MAY17	227	249	forward 1	TM	Non-Cytosolic
392	LI:474458.11:2001MAY17	250	269	forward 1	TM	Transmembrane
392	LI:474458.11:2001MAY17	270	275	forward 1	TM	Cytosolic
392	LI:474458.11:2001MAY17	276	298	forward 1	TM	Transmembrane
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TABLE 2							
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology	
392	LI:474458.11:2001MAY17	299	567	forward 1	TM	Non-Cytosolic	
392	LI:474458.11:2001MAY17	568	590	forward 1	TM	Transmembrane	
392	LI:474458.11:2001MAY17	591	617	forward 1	TM	<ul> <li>Cytosolic</li> </ul>	
392	LI:474458.11:2001MAY17	618	640	forward 1	TM	Transmembrane	
392	LI:474458.11:2001MAY17	641	854	forward 1	TM	Non-Cytosolic	
392	LI:474458.11:2001MAY17	1	572	forward 2	TM	Non-Cytosolic	
392	LI:474458.11:2001MAY17	573	595	forward 2	TM	Transmembrane	
392	LI:474458.11:2001MAY17	596	606	forward 2	TM	Cytosolic	
392	LI:474458.11:2001MAY17	607	629	forward 2	TM	Transmembrane	
392	LI:474458.11:2001MAY17	630	854	forward 2	TM	Non-Cytosolic	
392	LI:474458.11:2001MAY17	1	116	forward 3	TM	Cytosolic	
392	LI:474458.11:2001MAY17	117	139	forward 3	TM	Transmembrane	
392	LI:474458.11:2001MAY17	140	185	forward 3	TM	Non-Cytosolic	
392	LI:474458.11:2001MAY17	186	208	forward 3	TM	Transmembrane	
392	LI:474458.11:2001MAY17	209	214	forward 3	TM	Cytosolic	
392	LI:474458.11:2001MAY17	215	234	forward 3	TM	Transmembrane	
392	LI:474458.11:2001MAY17	235	248	forward 3	TM	Non-Cytosolic	
392	LI:474458.11:2001MAY17	249	268	forward 3	TM	Transmembrane	
392	LI:474458.11:2001MAY17	269	304	forward 3	TM	Cytosolic	
392	LI:474458.11:2001MAY17	305	327	forward 3	TM	Transmembrane	
392	LI:474458.11:2001MAY17	328	336	forward 3	TM	Non-Cytosolic	
392	LI:474458.11:2001MAY17	337	359	forward 3	TM	Transmembrane	
392	LI:474458.11:2001MAY17	360	415	forward 3	TM	Cytosolic	
392	LI:474458.11:2001MAY17	416	433	forward 3	TM	Transmembrane	
392	LI:474458.11:2001MAY17	434	. 567	forward 3	TM	Non-Cytosolic	
392	LI:474458.11:2001MAY17	568	- 590	forward 3	TM	Transmembrane	
392	LI:474458.11:2001MAY17	. 591	752	forward 3	TM	Cytosolic	
392	LI:474458.11:2001MAY17	753	775	forward 3	TM	Transmembrane	
392	LI:474458.11:2001MAY17	776	819	forward 3	TM	Non-Cytosolic	
392	LI:474458.11:2001MAY17	820	842	forward 3	TM	Transmembrane	
392	LI:474458.11:2001MAY17	843	854	forward 3	TM	Cytosolic	
393	LI:477127.18:2001MAY17	1	659	forward 1	TM	Non-Cytosolic	
393	LI:477127.18:2001MAY17	660	682	forward 1	TM	Transmembrane	
393	LI:477127.18:2001MAY17	683	752	forward 1	TM	Cytosolic	
393	LI:477127.18:2001MAY17	753	775	forward 1	TM ·	Transmembrane	
393	LI:477127.18:2001MAY17	776	1102	forward 1	TM	Non-Cytosolic	
393	LI:477127.18:2001MAY17	1	664	forward 2	TM	Non-Cytosolic	
393	LI:477127.18:2001MAY17	665	687	forward 2	TM	Transmembrane	
393	LI:477127.18:2001MAY17	688	750	forward 2	TM	Cytosolic	
393	LI:477127.18:2001MAY17	751	773	forward 2	TM	Transmembrane	
393	LI:477127.18:2001MAY17	774	1102	forward 2	TM	Non-Cytosolic	
393	LI:477127.18:2001MAY17	1	135	forward 3	TM	Cytosolic	
393	LI:477127.18:2001MAY17	136	158	forward 3	TM	Transmembrane	
393	LI:477127.18:2001MAY17	159	1102	forward 3	TM	Non-Cytosolic	
394	LI:480375.55:2001MAY17	1	740	forward 3	TM	Non-Cytosolic	
394	LI:480375.55:2001MAY17	741	763	forward 3	TM	Transmembrane	
394	LI:480375.55:2001MAY17	764	805	forward 3	TM	Cytosolic	
395	LI:480467.24:2001MAY17	1	146	forward 3	TM	Cytosolic	
395	LI:480467.24:2001MAY17	147	164	forward 3	TM	Transmembrane	
395	LI:480467.24:2001MAY17	165	191	forward 3	TM	Non-Cytosolic	
395	LI:480467.24:2001MAY17	192	214	forward 3	TM	Transmembrane	
395	LI:480467.24:2001MAY17	215	220	forward 3	TM	Cytosolic	
395	LI:480467.24:2001MAY17	221	238	forward 3	TM	Transmembrane	
395	LI:480467.24:2001MAY17	239	325	forward 3	TM	Non-Cytosolic	

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# TABLE 2

		TAE	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
395	LI:480467.24:2001MAY17	326	343	forward 3	TM	Transmembrane
395	LI:480467.24:2001MAY17	344	457	forward 3	TM	Cytosolic
396	LI:480587.1:2001MAY17	1	95	forward 1	TM	Cytosolic
396	LI:480587.1:2001MAY17	96	118	forward 1	TM	Transmembrane
396	LI:480587.1:2001MAY17	119	157	forward 1	TM	Non-Cytosolic
396	LI:480587.1:2001MAY17	158	175	forward 1	TM	Transmembrane
396	LI:480587.1:2001MAY17	176	238	forward 1	TM	Cytosolic
396	LI:480587.1:2001MAY17	239	261	forward 1	TM	Transmembrane
396	LI:480587.1:2001MAY17	262	273	forward 1	TM	Non-Cytosolic
396	LI:480587.1:2001MAY17	274	296	forward 1	TM	Transmembrane
396	LI:480587.1:2001MAY17	297	308	forward 1	TM	Cytosolic
396	LI:480587.1:2001MAY17	309	331	forward 1	TM	Transmembrane
396	L1:480587.1:2001MAY17	332	886	forward 1	TM	Non-Cytosolic
396	LI:480587.1:2001MAY17	887	909	forward 1	TM	Transmembrane
396	LI:480587.1:2001MAY17	910	942	forward 1	TM	Cytosolic
396	LI:480587.1:2001MAY17	943	965	forward 1	TM	Transmembrane
396	LI:480587.1:2001MAY17	966	1035	forward 1	TM	Non-Cytosolic
396	LI:480587.1:2001MAY17	1036	1058	forward 1	TM	Transmembrane
396	LI:480587.1:2001MAY17	1059	1070	forward 1	TM	Cytosolic
396	LI:480587.1:2001MAY17	1071	1093	forward 1	TM	Transmembrane
396	LI:480587.1:2001MAY17	1094	1097	forward 1	TM	Non-Cytosolic
396	LI:480587.1:2001MAY17	1098	1120	forward 1	TM	Transmembrane
396	LI:480587.1:2001MAY17	1121	1236	forward 1	TM	Cytosolic
396	LI:480587.1:2001MAY17	, . 1	. 275	forward 3	TM	Cytosolic
396	LI:480587.1:2001MAY17	. 276	298	forward 3	TM	Transmembrane
396	LI:480587.1:2001MAY17	. 299	307	forward 3	. TM	Non-Cytosolic
396	LI:480587.1:2001MAY17	308	330	forward 3	TM	Transmembrane
396	LI:480587.1:2001MAY17	331	424	forward 3	TM	Cytosolic
396	LI:480587.1:2001MAY17	425	447	forward 3	TM	Transmembrane
396	LI:480587.1:2001MAY17	448	938	forward 3	TM	Non-Cytosolic
396	LI:480587.1:2001MAY17	939	961	forward 3	TM	Transmembrane
396	LI:480587.1:2001MAY17	962	1073	forward 3	TM	Cytosolic
396	LI:480587.1:2001MAY17	1074	1096	forward 3	TM	Transmembrane
396	LI:480587.1:2001MAY17	1097	1235	forward 3	TM	Non-Cytosolic
397	LI:480798.13:2001MAY17	1	392	forward 1	TM	Non-Cytosolic
397	LI:480798.13:2001MAY17	393	410	forward 1	TM	Transmembrane
397	· LI:480798.13:2001MAY17	411	557	forward 1	TM	Cytosolic
397	LI:480798.13:2001MAY17	558	580	forward 1	TM	Transmembrane
397	LI:480798.13:2001MAY17	581	678	forward 1	TM	Non-Cytosolic
397	LI:480798.13:2001MAY17	679	701	forward 1	TM	Transmembrane
397	LI:480798.13:2001MAY17	702	741	forward 1	TM	Cytosolic
397	LI:480798.13:2001MAY17	1	362	forward 2	TM	Non-Cytosolic
397	LI:480798.13:2001MAY17	363	380	forward 2	TM	Transmembrane
397	LI:480798.13:2001MAY17	381	386	forward 2	TM	Cytosolic
397	LI:480798.13:2001MAY17	387	409	forward 2	TM	Transmembrane
397	LI:480798.13:2001MAY17	410	418	forward 2	TM	Non-Cytosolic
397	LI:480798.13:2001MAY17	419	441	forward 2	TM	Transmembrane
397	LI:480798.13:2001MAY17	442		forward 2	TM	Cytosolic
397	LI:480798.13:2001MAY17	671		forward 2	TM	Transmembrane
397	LI:480798.13:2001MAY17	694		forward 2	TM	Non-Cytosolic
397	LI:480798.13:2001MAY17	1	360	forward 3	TM	Non-Cytosolic
397	LI:480798.13:2001MAY17	361		forward 3	TM	Transmembrane
397	LI:480798.13:2001MAY17	381		forward 3	TM	Cytosolic
397	LI:480798.13:2001MAY17	392		forward 3	·TM	Transmembrane
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#### TABLE 2 Domain Type Stop Topology SEQ D NO: Template ID Start Frame Non-Cytosolic 397 LI:480798.13:2001MAY17 412 420 forward 3 TM forward 3 TM Transmembrane 397 LI:480798.13:2001MAY17 421 443 397 444 476 forward 3 TM Cytosolic LI:480798.13:2001MAY17 397 477 499 forward 3 TM Transmembrane LI:480798.13:2001MAY17 397 LI:480798.13:2001MAY17 500 559 forward 3 TM Non-Cytosolic 397 LI:480798.13:2001MAY17 560 579 forward 3 TM Transmembrane 580 637 forward 3 TM Cytosolic 397 LI:480798.13:2001MAY17 TM Transmembrane 397 656 forward 3 LI:480798.13:2001MAY17 638 Non-Cytosolic 397 LI:480798.13:2001MAY17 657 670 forward 3 TM 397 693 forward 3 TM Transmembrane LI:480798.13:2001MAY17 671 397 694 740 forward 3 TM Cytosolic LI:480798.13:2001MAY17 160 forward 2 TM Cytosolic 398 LI:481203.14:2001MAY17 1 forward 2 TM Transmembrane 398 LI:481203.14:2001MAY17 161 183 1084 forward 2 TM Non-Cytosolic 398 LI:481203.14:2001MAY17 184 399 LI:481237.11:2001MAY17 1 711 forward 2 TM Non-Cytosolic 399 .LI:481237.11:2001MAY17 712 731 forward 2 TM Transmembrane 399 732 811 forward 2 TM Cytosolic LI:481237.11:2001MAY17 399 LI:481237.11:2001MAY17 812 831 forward 2 TM Transmembrane 399 LI:481237.11:2001MAY17 832 844 forward 2 TM Non-Cytosolic forward 2 TM Cytosolic 400 LI:481368.12:2001MAY17 1 15 400 16 38 forward 2 TM Transmembrane LI:481368.12:2001MAY17 forward 2 TM Non-Cytosolic 39 956 400 LI:481368.12:2001MAY17 TM Non-Cytosolic 358 forward 1 401 L1:482301.8:2001MAY17 1 Transmembrane 401 LI:482301.8:2001MAY17 359 381 forward 1 TM 382 409 forward 1 TM Cytosolic 401 LI:482301.8:2001MAY17 432 Transmembrane 401 LI:482301.8:2001MAY17 410 forward 1 TM 433 589 forward 1 TM Non-Cytosolic 401 LI:482301.8:2001MAY17 609 TM Transmembrane 590 forward 1 401 LI:482301.8:2001MAY17 626 TM Cytosolic 610 forward 1 401 LI:482301.8:2001MAY17 361 Non-Cytosolic 401 LI:482301.8:2001MAY17 . 1 forward 2 TM 401 LI:482301.8:2001MAY17 362 384 forward 2 TM Transmembrane 401 LI:482301.8:2001MAY17 385 536 forward 2 TM Cytosolic 401 LI:482301.8:2001MAY17 537 559 forward 2 TM Transmembrane 560 597 forward 2 TM Non-Cytosolic 401 LI:482301.8:2001MAY17 598 620 forward 2 TM Transmembrane 401 LI:482301.8:2001MAY17 625 forward 2 TM Cytosolic 401 LI:482301.8:2001MAY17 621 Non-Cytosolic 401 153 forward 3 TM LI:482301.8:2001MAY17 1 154 176 forward 3 Transmembrane 401 LI:482301.8:2001MAY17 TM 401 177 333 forward 3 TM Cytosolic LI:482301.8:2001MAY17 334 356 forward 3 Transmembrane TM 401 LI:482301.8:2001MAY17 360 Non-Cytosolic 357 forward 3 TM 401 LI:482301.8:2001MAY17 383 401 LI:482301.8:2001MAY17 361 forward 3 TM Transmembrane 384 387 forward 3 TM Cytosolic 401 LI:482301.8:2001MAY17 388 401 410 forward 3 TM Transmembrane LI:482301.8:2001MAY17 411 625 forward 3 Non-Cytosolic 401 TM LI:482301.8:2001MAY17 168 forward 1 Cytosolic TM 402 LI:482482.29:2001MAY17 1 169 191 402 LI:482482.29:2001MAY17 forward 1 TM Transmembrane

192

1

120

143

1

202

386

119

142

385

201

224

265

forward 1

forward 3

forward 3

forward 3

forward 1

forward 1

forward 1

TM

TM

TM

TM

TM

TM

TM

Non-Cytosolic

Cytosolic

Transmembrane

Non-Cytosolic

Non-Cytosolic

Transmembrane

Cytosolic

402

402

402

402

403

403

403

LI:482482.29:2001MAY17

LI:482482.29:2001MAY17

LI:482482.29:2001MAY17

LI:482482.29:2001MAY17

LI:758877.26:2001MAY17

LI:758877.26:2001MAY17

LI:758877.26:2001MAY17

TABLE 2							
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology	
403	LI:758877.26:2001MAY17	266	288	forward 1	TM	Transmembrane	
403	LI:758877.26:2001MAY17	289	711	forward 1	TM	Non-Cytosolic	
403	LI:758877.26:2001MAY17	1	205	forward 2	TM	Cytosolic	
403	LI:758877.26:2001MAY17	206	228	forward 2	TM	Transmembrane	
403	LI:758877.26:2001MAY17	229	263	forward 2	TM	Non-Cytosolic	
403	LI:758877.26:2001MAY17	264	286	forward 2	TM	Transmembrane	
403	LI:758877.26:2001MAY17	287	290	forward 2	TM	Cytosolic	
403	LI:758877.26:2001MAY17	291	313	forward 2	TM	Transmembrane	
403	LI:758877.26:2001MAY17	314	327	forward 2	TM	Non-Cytosolic	
403	LI:758877.26:2001MAY17	328	350	forward 2	TM	Transmembrane	
403	LI:758877.26:2001MAY17	351	485	forward 2	TM	Cytosolic	
403	LI:758877.26:2001MAY17	486	508	forward 2	TM	Transmembrane	
403	LI:758877.26:2001MAY17	509	586	forward 2	TM	Non-Cytosolic	
403	LI:758877.26:2001MAY17	587	609	forward 2	TM	Transmembrane	
403	LI:758877.26:2001MAY17	610	711	forward 2	TM	Cytosolic	
403	LI:758877.26:2001MAY17	1	490	forward 3	TM	Non-Cytosolic	
403	LI:758877.26:2001MAY17	491	513	forward 3	TM	Transmembrane	
403	LI:758877.26:2001MAY17	514	571	forward 3	TM	Cytosolic	
403	LI:758877.26:2001MAY17	572	594	forward 3	TM	Transmembrane	
403	LI:758877.26:2001MAY17	595	640	forward 3	TM	Non-Cytosolic	
403	LI:758877.26:2001MAY17	641	663	forward 3	TM	Transmembrane	
403	LI:758877.26:2001MAY17	664	710	forward 3	TM	Cytosolic	
404	LI:791042.1:2001MAY17	1	455	forward 3	TM	Non-Cytosolic	
404	LI:791042.1:2001MAY17	456	478	forward 3	TM	Transmembrane	
404	LI:791042.1:2001MAY17	479	497	forward 3	TM	Cytosolic	
404	LI:791042.1:2001MAY17	498			TM	Transmembrane	
404	LI:791042.1:2001MAY17		550	forward 3	TM	Non-Cytosolic	
405	LI:808999.26:2001MAY17	1		forward 3	TM	Non-Cytosolic	
405	LI:808999.26:2001MAY17	1476	1498	forward 3	TM	Transmembrane	
. 405	LI:808999.26:2001MAY17	1499	1523	forward 3	TM	Cytosolic	
405	LI:808999.26:2001MAY17	1524 1547	1546 1565	forward 3 forward 3	TM TM	Transmembrane Non-Cytosolic	
405	LI:808999.26:2001MAY17	1566	1588	forward 3	TM	Transmembrane	
405	LI:808999.26:2001MAY17	1589	1846	forward 3	TM	Cytosolic	
405	LI:808999.26:2001MAY17	1369	355	forward 1	TM	Non-Cytosolic	
406 406	LI:815715.10:2001MAY17 LI:815715.10:2001MAY17	356	378	forward 1	TM	Transmembrane	
406	LI:815715.10:2001MAY17	379	387	forward 1	TM	Cytosolic	
406	LI:815715.10:2001MAY17	1	14	forward 2	TM	Non-Cytosolic	
406	LI:815715.10:2001MAY17	15	37	forward 2	TM	Transmembrane	
406	LI:815715.10:2001MAY17	38	305	forward 2	TM	Cytosolic	
406	LI:815715.10:2001MAY17	306	328	forward 2	TM	Transmembrane	
406	LI:815715.10:2001MAY17	329	337	forward 2	TM	Non-Cytosolic	
406	LI:815715.10:2001MAY17	338	360	forward 2	TM	Transmembrane	
406	LI:815715.10:2001MAY17	361	366	forward 2	TM	Cytosolic	
406	LI:815715.10:2001MAY17	367	384	forward 2	TM	Transmembrane	
406	LI:815715.10:2001MAY17	385	386	forward 2	TM	Non-Cytosolic	
406	LI:815715.10:2001MAY17	1	92	forward 3	TM	Cytosolic	
406	LI:815715.10:2001MAY17	93	115	forward 3	TM	Transmembrane	
406	LI:815715.10:2001MAY17	116	358	forward 3	TM	Non-Cytosolic	
406	LI:815715.10:2001MAY17	359	381	forward 3	TM	Transmembrane	
406	LI:815715.10:2001MAY17	382	386	forward 3	TM	Cytosolic	
407	LI:902980.16:2001MAY17	1	448	forward 1	TM	Non-Cytosolic	
407	LI:902980.16:2001MAY17	449	471	forward 1	TM	Transmembrane	
407	LI:902980.16:2001MAY17	472	553	forward 1	TM	Cytosolic	

		TABI	.E 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
407	LI:902980.16:2001MAY17	554	576	forward 1	TM	Transmembrane
407	LI:902980.16:2001MAY17	577	585	forward 1	TM	Non-Cytosolic
407	LI:902980.16:2001MAY17	586	608	forward 1	TM	Transmembrane
407	LI:902980.16:2001MAY17	609	655	forward 1	TM	Cytosolic
407	LI:902980.16:2001MAY17	656	678	forward 1	TM	Transmembrane
407	LI:902980.16:2001MAY17	679	1196	forward 1	TM	Non-Cytosolic
407	LI:902980.16:2001MAY17	1	415	forward 2	TM	Non-Cytosolic
407	LI:902980.16:2001MAY17	416	438	forward 2	TM	Transmembrane
407	LI:902980.16:2001MAY17	439	559	forward 2	TM	Cytosolic
407	LI:902980.16:2001MAY17	560	582	forward 2	TM	Transmembrane
407	LI:902980.16:2001MAY17	583	596	forward 2	TM	Non-Cytosolic
407	LI:902980.16:2001MAY17	597	619	forward 2	TM	Transmembrane
407	LI:902980.16:2001MAY17	620	639	forward 2	TM	Cytosolic
407	LI:902980.16:2001MAY17	640	662	forward 2	TM	Transmembrane
407	LI:902980.16:2001MAY17	663	699	forward 2	TM	Non-Cytosolic
407	LI:902980.16:2001MAY17	700	721	forward 2	TM	Transmembrane
407	LI:902980.16:2001MAY17	722	816	forward 2	TM	Cytosolic
407	LI:902980.16:2001MAY17	817	834	forward 2	TM	Transmembrane
407	LI:902980.16:2001MAY17	835	853	forward 2	TM	Non-Cytosolic
407	LI:902980.16:2001MAY17	854	876	forward 2	TM	Transmembrane
407	LI:902980.16:2001MAY17	877	882	forward 2	TM	Cytosolic
407	LI:902980.16:2001MAY17	883	905	forward 2	TM	Transmembrane
407	LI:902980.16:2001MAY17	906	1196	forward 2	TM	Non-Cytosolic
407	LI:902980.16:2001MAY17	1	558	forward 3	TM	Non-Cytosolic
407	LI:902980.16:2001MAY17	559	581	forward 3	TM	Transmembrane
	LI:902980.16:2001MAY17	582	655	forward 3	TM	Cytosolic
407	LI:902980.16:2001MAY17	656	678	forward 3	TM	Transmembrane
407	LI:902980.16:2001MAY17	679	840	forward 3	TM	Non-Cytosolic
407	LI:902980.16:2001MAY17	841	863	forward 3	TM	Transmembrane
407	LI:902980.16:2001MAY17	864	869	forward 3	TM	Cytosolic
407	LI:902980.16:2001MAY17	870	892	forward 3	TM	Transmembrane
407	LI:902980.16:2001MAY17	893	1002	forward 3	TM	Non-Cytosolic
407	LI:902980.16:2001MAY17	1003	1025	forward 3	TM	Transmembrane
407	LI:902980.16:2001MAY17	1026	1044	forward 3	TM	Cytosolic
407	LI:902980.16:2001MAY17	1045	1067	forward 3	TM	Transmembrane
407	LI:902980.16:2001MAY17	1068	1196	forward 3	TM	Non-Cytosolic
408	LI:903196.25:2001MAY17	1	829	forward 2	TM	Non-Cytosolic
408	LI:903196.25:2001MAY17	830	852	forward 2	TM	Transmembrane
408	LI:903196.25:2001MAY17	853	864	forward 2	TM	Cytosolic
408	LI:903196.25:2001MAY17	865	884	forward 2	TM	Transmembrane
408	LI:903196.25:2001MAY17	885	920	forward 2	TM ·	Non-Cytosolic
408	LI:903196.25:2001MAY17	921	943	forward 2	TM	Transmembrane
408	LI:903196.25:2001MAY17	944	1224	forward 2	TM	Cytosolic
409	LI:903914.10:2001MAY17	1	415	forward 2	TM	Non-Cytosolic
409	LI:903914.10:2001MAY17	416	435	forward 2	TM	Transmembrane
409	LI:903914.10:2001MAY17	436	664	forward 2	TM	Cytosolic
409	LI:903914.10:2001MAY17	665	687	forward 2	TM	Transmembrane
409	LI:903914.10:2001MAY17	688	701	forward 2	TM	Non-Cytosolic
409	LI:903914.10:2001MAY17	702	724	forward 2	TM	Transmembrane
409	LI:903914.10:2001MAY17	725	743	forward 2	TM	Cytosolic
409	LI:903914.10:2001MAY17	744	766	forward 2	TM	Transmembrane
409	LI:903914.10:2001MAY17	767	1664	forward 2	TM	Non-Cytosolic
409	LI:903914.10:2001MAY17	1	668	forward 3	TM	Non-Cytosolic
409	LI:903914.10:2001MAY17	669	691	forward 3	TM	Transmembrane

		TABI	.E 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
409	LI:903914.10:2001MAY17	692	841	forward 3	TM	Cytosolic
409	LI:903914.10:2001MAY17	842	864	forward 3	TM	Transmembrane
409	LI:903914.10:2001MAY17	865	1579	forward 3	TM	Non-Cytosolic
409	LI:903914.10:2001MAY17	1580	1602	forward 3	TM	Transmembrane
409	LI:903914.10:2001MAY17	1603	1663	forward 3	TM	Cytosolic
410	LG:006764.2:2001JUN22	1	139	forward 1	TM	Cytosolic
410	LG:006764.2:2001JUN22	140	162	forward 1	TM	Transmembrane
410	LG:006764.2:2001JUN22	163	181	forward 1	TM	Non-Cytosolic
410	LG:006764.2:2001JUN22	182	204	forward 1	TM	Transmembrane
410	LG:006764.2:2001JUN22	205	479	forward 1	TM	Cytosolic
410	LG:006764.2:2001JUN22	·480	502	forward 1	TM	Transmembrane
410	LG:006764.2:2001JUN22	503	511	forward 1	TM	Non-Cytosolic
410	LG:006764.2:2001JUN22	512	534	forward 1	TM	Transmembrane
410	LG:006764.2:2001JUN22	535	539	forward 1	TM	Cytosolic
410	LG:006764.2:2001JUN22	1	441	forward 2	TM	Non-Cytosolic
410	LG:006764.2:2001JUN22	442	464	forward 2	TM	Transmembrane
410	LG:006764.2:2001JUN22	465	484	forward 2	TM	Cytosolic
410	LG:006764.2:2001JUN22	485	507	forward 2	TM	Transmembrane
410	LG:006764.2:2001JUN22	508	538	forward 2	TM	Non-Cytosolic
410	LG:006764.2:2001JUN22	1	86	forward 3	TM	Non-Cytosolic
410	LG:006764.2:2001JUN22	87	109	forward 3	TM	Transmembrane
410	LG:006764.2:2001JUN22	110	142	forward 3	TM	Cytosolic
410	LG:006764.2:2001JUN22	143	165	forward 3	TM	Transmembrane
410	LG:006764.2:2001JUN22	166	184	forward 3	TM	Non-Cytosolic
410	LG:006764.2:2001JUN22	185	207	forward 3	· TM	Transmembrane
410	LG:006764.2:2001JUN22	208	472	forward 3	TM	Cytosolic
410	LG:006764.2:2001JUN22	473	495	forward-3	TM	Transmembrane
410	LG:006764.2:2001JUN22	496	509	forward 3	TM	Non-Cytosolic
410	LG:006764.2:2001JUN22	510	532	forward 3	TM	Transmembrane
410	LG:006764.2:2001JUN22	533	538	forward 3	TM	Cytosolic
411	LG:014704.8:2001JUN22	1	30	forward 1	TM	Non-Cytosolic
411	LG:014704.8:2001JUN22	31	53	forward 1	TM	Transmembrane
411	LG:014704.8:2001JUN22	54	72	forward 1	TM	Cytosolic
411	LG:014704.8:2001JUN22	73	95	forward 1	TM	Transmembrane
411	LG:014704.8:2001JUN22	96	467	forward 1	TM	Non-Cytosolic
411	LG:014704.8:2001JUN22	468	485	forward 1	TM	Transmembrane
411	LG:014704.8:2001JUN22	486	517	forward 1	TM	Cytosolic
411	LG:014704.8:2001JUN22	518	540	forward 1	TM	Transmembrane
411	LG:014704.8:2001JUN22	541	568	forward 1	TM	Non-Cytosolic
411	LG:014704.8:2001JUN22	569	591	forward 1	TM	Transmembrane
411	LG:014704.8:2001JUN22	592	647	forward 1	TM	Cytosolic
411	LG:014704.8:2001JUN22	1	505	forward 2	TM	Non-Cytosolic
411	LG:014704.8:2001JUN22	506	523	forward 2	TM	Transmembrane
411	LG:014704.8:2001JUN22	524	560	forward 2	TM	Cytosolic
411	LG:014704.8:2001JUN22	561	583	forward 2	TM	Transmembrane
411	LG:014704.8:2001JUN22	584	646	forward 2	TM	Non-Cytosolic
411	LG:014704.8:2001JUN22	1	133	forward 3	TM	Cytosolic
411	LG:014704.8:2001JUN22	134	151	forward 3	TM	Transmembrane
411	LG:014704.8:2001JUN22	152	165	forward 3	TM	Non-Cytosolic
411	LG:014704.8:2001JUN22	166	184	forward 3	TM	Transmembrane
411	LG:014704.8:2001JUN22	185	196	forward 3	TM	Cytosolic
411	LG:014704.8:2001JUN22	197	219	forward 3	TM	Transmembrane
411	LG:014704.8:2001JUN22	220	233	forward 3	TM	Non-Cytosolic
411	LG:014704.8:2001JUN22	234	256	forward 3	TM	Transmembrane

		TABI	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
411	LG:014704.8:2001JUN22	257	305	forward 3	TM	Cytosolic
411	LG:014704.8:2001JUN22	306	328	forward 3	TM	Transmembrane
411	LG:014704.8:2001JUN22	329	350	forward 3	TM	Non-Cytosolic
411	LG:014704.8:2001JUN22	351	373	forward 3	TM	Transmembrane
411	LG:014704.8:2001JUN22	374	393	forward 3	TM	Cytosolic
411	LG:014704.8:2001JUN22	394	413	forward 3	TM	Transmembrane
411	LG:014704.8:2001JUN22	414	467	forward 3	TM	Non-Cytosolic
411	LG:014704.8:2001JUN22	468	485	forward 3	TM	Transmembrane
411	LG:014704.8:2001JUN22	486	491	forward 3	TM	Cytosolic
411	LG:014704.8:2001JUN22	492	514	forward 3	TM	Transmembrane
411	LG:014704.8:2001JUN22	515	564	forward 3	TM	Non-Cytosolic
411	LG:014704.8:2001JUN22	565	584	forward 3	TM	Transmembrane
411	LG:014704.8:2001JUN22	585	646	forward 3	TM	Cytosolic
412	LG:1447607.7:2001JUN22	1	72	forward 1	TM	Cytosolic
412	LG:1447607.7:2001JUN22	73	95	forward 1	TM	Transmembrane
412	LG:1447607.7:2001JUN22	96	336	forward 1	TM	Non-Cytosolic
412	LG:1447607.7:2001JUN22	337	359	forward I	TM	Transmembrane
412	LG:1447607.7:2001JUN22	360	406	forward 1	TM	Cytosolic
412	LG:1447607.7:2001JUN22	407	429	forward 1	TM	Transmembrane
412	LG:1447607.7:2001JUN22	430	760	forward 1	TM	Non-Cytosolic
412	LG:1447607.7:2001JUN22	1	20	forward 2	TM	Cytosolic
412	LG:1447607.7:2001JUN22	21	43	forward 2	TM	Transmembrane
412	LG:1447607.7:2001JUN22	44	72	forward 2	TM	Non-Cytosolic
412	LG:1447607.7:2001JUN22	73	92	forward 2	TM	Transmembrane
412	LG:1447607.7:2001JUN22	93	276	forward 2	TM	Cytosolic
. 412	LG:1447607.7:2001JUN22	277		forward 2	TM	Transmembrane
412	LG:1447607.7:2001JUN22	300	323	forward 2	TM	Non-Cytosolic
412	LG:1447607.7:2001JUN22	324	346	forward 2	TM	Transmembrane
412	LG:1447607.7:2001JUN22	347	407	forward 2	TM	Cytosolic
412	LG:1447607.7:2001JUN22	408	430	forward 2	TM	Transmembrane
412	LG:1447607.7:2001JUN22	431	449	forward 2	TM	Non-Cytosolic
412	LG:1447607.7:2001JUN22	450	472	forward 2	TM	Transmembrane
412	LG:1447607.7:2001JUN22	473	694	forward 2	TM	Cytosolic
412	LG:1447607.7:2001JUN22	695	717	forward 2	TM	Transmembrane
412	LG:1447607.7:2001JUN22	718	759	forward 2	TM	Non-Cytosolic
412	LG:1447607.7:2001JUN22	1	19	forward 3	TM	Cytosolic
412	LG:1447607.7:2001JUN22	20	39	forward 3	TM	Transmembrane
412	LG:1447607.7:2001JUN22	40	334	forward 3	TM	Non-Cytosolic
412	LG:1447607.7:2001JUN22	335	357	forward 3	TM	Transmembrane
412	LG:1447607.7:2001JUN22	358	381	forward 3	TM	Cytosolic
412	LG:1447607.7:2001JUN22	382	404	forward 3	TM	Transmembrane
412	LG:1447607.7:2001JUN22	405	423	forward 3	TM	Non-Cytosolic
412	LG:1447607.7:2001JUN22	424	446	forward 3	TM	Transmembrane
412	LG:1447607.7:2001JUN22	447	699	forward 3	TM	Cytosolic
412	LG:1447607.7:2001JUN22	700	722	forward 3	TM	Transmembrane
.412	LG:1447607.7:2001JUN22	723	759	forward 3	TM	Non-Cytosolic
413	LG:1455032.3:2001JUN22	1	151	forward I	TM	Cytosolic
413	LG:1455032.3:2001JUN22	152	174	forward 1	TM	Transmembrane
413	LG:1455032.3:2001JUN22	175	244	forward 1	TM	Non-Cytosolic
413	LG:1455032.3:2001JUN22	245	264	forward 1	TM	Transmembrane
413	LG:1455032.3:2001JUN22	265	396	forward 1	TM	Cytosolic
413	LG:1455032.3:2001JUN22	1	134	forward 2	TM	Cytosolic
413	LG:1455032.3:2001JUN22	135	157	forward 2	TM	Transmembrane
413	LG:1455032.3:2001JUN22	158	166	forward 2	TM	Non-Cytosolic
417	20.1 120022,3,2001301422	150	.00		~ 4.4	,

		TABL	.E 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
413	LG:1455032.3:2001JUN22	167	184	forward 2	TM	Transmembrane
413	LG:1455032.3:2001JUN22	185	396	forward 2	TM	Cytosolic
413	LG:1455032.3:2001JUN22	1	164	forward 3	TM	Cytosolic
413	LG:1455032.3:2001JUN22	165	187	forward 3	TM	Transmembrane
413	LG:1455032.3:2001JUN22	188	274	forward 3	TM	Non-Cytosolic
413	LG:1455032.3:2001JUN22	275	297	forward 3	TM	Transmembrane
413	LG:1455032.3:2001JUN22	298	395	forward 3	TM	Cytosolic
414	LG:1501898.18:2001JUN22	1	6	forward 3	TM	Cytosolic
414	LG:1501898.18:2001JUN22	7	29	forward 3	TM	Transmembrane
414	LG:1501898.18:2001JUN22	30	357	forward 3	TM	Non-Cytosolic
415	LG:1502692.5:2001JUN22	1	178	forward 1	TM	Non-Cytosolic
415	LG:1502692.5:2001JUN22	179	201	forward 1	TM	Transmembrane
415	LG:1502692.5:2001JUN22	202	213	forward 1	TM	Cytosolic
415	LG:1502692.5:2001JUN22	214	236	forward 1	TM	Transmembrane
415	LG:1502692.5:2001JUN22	237	255	forward 1	TM	Non-Cytosolic
415	LG:1502692.5:2001JUN22	256	273	forward 1	TM	Transmembrane
415	LG:1502692.5:2001JUN22	274	327	forward 1	TM	Cytosolic
415	LG:1502692.5:2001JUN22	328	347	forward 1	TM	Transmembrane
415	LG:1502692.5:2001JUN22	348	359	forward 1	TM	Non-Cytosolic
415	LG:1502692.5:2001JUN22	1	129	forward 2	TM	Cytosolic
415	LG:1502692.5:2001JUN22	130	152	forward 2	TM	Transmembrane
415	LG:1502692.5:2001JUN22	153	224	forward 2	TM	Non-Cytosolic
415	LG:1502692.5:2001JUN22	225	247	forward 2	TM	Transmembrane
415	LG:1502692.5:2001JUN22	248	258	forward 2	TM	Cytosolic
415	LG:1502692.5:2001JUN22	259	276	forward 2	TM	Transmembrane
415	LG:1502692.5:2001JUN22	277	330	forward 2	· TM	Non-Cytosolic
415	LG:1502692.5:2001JUN22	331	350	forward 2	TM	Transmembrane
415	LG:1502692.5:2001JUN22	351	359	forward 2	TM	Cytosolic
415	LG:1502692.5:2001JUN22	1	44	forward 3	TM	Cytosolic
415	LG:1502692.5:2001JUN22	45	67	forward 3	TM	Transmembrane
415	LG:1502692.5:2001JUN22	68	166	forward 3	TM	Non-Cytosolic
415	LG:1502692.5:2001JUN22	167	189	forward 3	TM	Transmembrane
415	LG:1502692.5:2001JUN22	190	209	forward 3	TM	Cytosolic
415	LG:1502692.5:2001JUN22	210	232	forward 3	TM	Transmembrane
415	LG:1502692.5:2001JUN22	233	358	forward 3	TM	Non-Cytosolic
416	LG:208949.8:2001JUN22	1	177	forward 1	TM	Cytosolic
416	LG:208949.8:2001JUN22	178	200	forward 1	TM	Transmembrane
416	LG:208949.8:2001JUN22	201	219	forward 1	TM	Non-Cytosolic
416	LG:208949.8:2001JUN22	220	237	forward 1	TM	Transmembrane
416	LG:208949.8:2001JUN22	238	253	forward 1	TM	Cytosolic
416	LG:208949.8:2001JUN22	1	161	forward 2	TM	Cytosolic
416	LG:208949.8:2001JUN22	162	184	forward 2	TM	Transmembrane
416	LG:208949.8:2001JUN22	185	253	forward 2	TM	Non-Cytosolic
416	LG:208949.8:2001JUN22	1	223	forward 3	TM	Cytosolic
416	LG:208949.8:2001JUN22	224	246	forward 3	TM	Transmembrane
416	LG:208949.8:2001JUN22	247	252	forward 3	TM	Non-Cytosolic
417	LG:240501.10:2001JUN22	1	112	forward 1	TM	Cytosolic
417	LG:240501.10:2001JUN22	113	135	forward 1	TM	Transmembrane
417	LG:240501.10:2001JUN22	136	138	forward 1	TM	Non-Cytosolic
417	LG:240501.10:2001JUN22	139	161	forward 1	TM	Transmembrane
417	LG:240501.10:2001JUN22	162	167	forward 1	TM	Cytosolic
417	LG:240501.10:2001JUN22	168	185	forward 1	TM	Transmembrane
417	LG:240501.10:2001JUN22	186	215	forward 1	TM	Non-Cytosolic
417	LG:240501.10:2001JUN22	216	235	forward 1	TM	Transmembrane

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		1110				
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
417	LG:240501.10:2001JUN22	236	241	forward 1	TM	Cytosolic
417	LG:240501.10:2001JUN22	242	264	forward 1	TM	Transmembrane
417	LG:240501.10:2001JUN22	265	267	forward 1	TM	Non-Cytosolic
417	LG:240501.10:2001JUN22	268	290	forward 1	TM	Transmembrane
417	LG:240501.10:2001JUN22	291	413	forward 1	TM	Cytosolic
417	LG:240501.10:2001JUN22	1	106	forward 2	TM	Cytosolic
417	LG:240501.10:2001JUN22	107	129	forward 2	TM	Transmembrane
417	LG:240501.10:2001JUN22	130	138	forward 2	TM	Non-Cytosolic
417	LG:240501.10:2001JUN22	139	161	forward 2	TM	Transmembrane
417	LG:240501.10:2001JUN22	162	215	forward 2	TM	Cytosolic
417	LG:240501.10:2001JUN22	216	233	forward 2	TM	Transmembrane
417	LG:240501.10:2001JUN22	234	413	forward 2	TM	Non-Cytosolic
417	LG:240501.10:2001JUN22	1	67	forward 3	TM	Cytosolic
417	LG:240501.10:2001JUN22	68	90	forward 3	TM	Transmembrane
417	LG:240501.10:2001JUN22	91	109	forward 3	TM	Non-Cytosolic
417	LG:240501.10:2001JUN22	110	132	forward 3	TM	Transmembrane
417	LG:240501.10:2001JUN22	133	138	forward 3	TM	Cytosolic
417	LG:240501.10:2001JUN22	139	161	forward 3	TM	Transmembrane
417	LG:240501.10:2001JUN22	162	215	forward 3	TM	Non-Cytosolic
417	LG:240501.10:2001JUN22	216	234	forward 3	TM	Transmembrane
417	LG:240501.10:2001JUN22	235	240	forward 3	TM	Cytosolic
417	LG:240501.10:2001JUN22	241	263	forward 3	TM	Transmembrane
417	LG:240501.10:2001JUN22	264	322	forward 3	TM	Non-Cytosolic
417 .	LG:240501.10:2001JUN22	323	345	forward 3	TM	Transmembrane
417	LG:240501.10:2001JUN22	346	412	forward 3	TM	Cytosolic
418	LG:329228.27:2001JUN22	1	261	forward 1	TM	Non-Cytosolic
418	LG:329228.27:2001JUN22	262	284	forward 1	TM	Transmembrane
418	LG:329228.27:2001JUN22	285	290	forward 1	TM	Cytosolic
418	LG:329228.27:2001JUN22	291	313	forward 1	TM	Transmembrane
418	LG:329228.27:2001JUN22	314	509	forward 1	TM	Non-Cytosolic
418	LG:329228.27:2001JUN22	1	263	forward 2	TM	Cytosolic
418	LG:329228.27:2001JUN22	264	286	forward 2	TM	Transmembrane
418	LG:329228.27:2001JUN22	287	509	forward 2	TM	Non-Cytosolic
418	LG:329228.27:2001JUN22	1	220	forward 3	TM	Non-Cytosolic
418	LG:329228.27:2001JUN22	221	243	forward 3	TM	Transmembrane
418	LG:329228.27:2001JUN22	244	254	forward 3	TM	Cytosolic
418	LG:329228.27:2001JUN22	255	274	forward 3	TM	Transmembrane
418	LG:329228.27:2001JUN22	275	508	forward 3	TM	Non-Cytosolic
419	LG:337056.11:2001JUN22	1	20	forward 2	TM	Cytosolic
419	LG:337056.11:2001JUN22	21	43	forward 2	TM	Transmembrane
419	LG:337056.11:2001JUN22	44	62	forward 2	TM	Non-Cytosolic
419	LG:337056.11:2001JUN22	63	85	forward 2	TM	Transmembrane
419	LG:337056.11:2001JUN22	86	131	forward 2	TM	Cytosolic
419	LG:337056.11:2001JUN22	132	154	forward 2	TM	Transmembrane
419	LG:337056.11:2001JUN22	155	227	forward 2	TM	Non-Cytosolic
420	LG:346663.9:2001JUN22	1	303	forward 1	TM	Non-Cytosolic
420	LG:346663.9:2001JUN22	304	326	forward 1	TM	Transmembrane
420	LG:346663.9:2001JUN22	327	337	forward 1	TM	Cytosolic
420	LG:346663.9:2001JUN22	338	360	forward 1	TM	Transmembrane
420	LG:346663.9:2001JUN22	361	388	forward 1	TM	Non-Cytosolic
420 420	LG:346663.9:2001JUN22	389	406	forward 1	TM	Transmembrane
420 420	LG:346663.9:2001JUN22	407	417	forward 1	TM	Cytosolic
420 420	LG:346663.9:2001JUN22	418	440	forward 1	TM	Transmembrane
420 420	LG:346663.9:2001JUN22	418	445	forward 1	TM	Non-Cytosolic
420	20.040003.9.20011UN22	441	. <del>-11</del> J	ioi walu l	I IVI	Hon-Cytosone

CEO D NO	Townston ID	Ctons	 Ctom	Eromo	Domain Type	Tomalanı
SEQ D NO:	Template ID	Start	Stop	Frame		Topology
420	LG:346663.9:2001JUN22	1	310	forward 2	TM	Non-Cytosolic
420	LG:346663.9:2001JUN22	311	333	forward 2	TM	Transmembrane
420	LG:346663.9:2001JUN22	334	445	forward 2	TM .	Cytosolic
420	LG:346663.9:2001JUN22	1	302	forward 3	TM	Cytosolic
420	LG:346663.9:2001JUN22	303	325	forward 3	TM	Transmembrane
420	LG:346663.9:2001JUN22	326	334	forward 3	TM	Non-Cytosolic
420	LG:346663.9:2001JUN22	335	357	forward 3	TM	Transmembrane
420	LG:346663.9:2001JUN22	358	363	forward 3	· TM	Cytosolic
420	LG:346663.9:2001JUN22	364	386	forward 3	TM	Transmembrane
420	LG:346663.9:2001JUN22	387	400	forward 3	TM	Non-Cytosolic
420	LG:346663.9:2001JUN22	401	423	forward 3	TM	Transmembrane
420	LG:346663.9:2001JUN22	424	445	forward 3	, TM	Cytosolic
421	LG:7685586.2:2001JUN22	1	152	forward 1	TM	Non-Cytosolic
421	LG:7685586.2:2001JUN22	153	175	forward 1	TM	Transmembrane
421	LG:7685586.2:2001JUN22	176	195	forward 1	TM	Cytosolic
421	LG:7685586.2:2001JUN22	1 .		forward 3	TM	Cytosolic
421	LG:7685586.2:2001JUN22	143	165	forward 3	TM	Transmembrane
421	LG:7685586.2:2001JUN22	166	194	forward 3	TM	Non-Cytosolic
422	LG:407730.13:2001JUN22	1	14	forward 1	TM	Non-Cytosolic
422	LG:407730.13:2001JUN22	15	34	forward 1	TM	Transmembrane
422	LG:407730.13:2001JUN22	35	163	forward 1	TM	Cytosolic
422	LG:407730.13:2001JUN22	1	14	forward 3	TM	Non-Cytosolic
422	LG:407730.13:2001JUN22	15	37	forward 3	TM	Transmembrane
422	LG:407730.13:2001JUN22	38	162	forward 3	TM	Cytosolic
423	LG:025465.5:2001JUN22	1	421	forward 1	TM	Non-Cytosolic
423	LG:025465.5:2001JUN22	422	444	forward 1	TM	Transmembrane
423	LG:025465.5:2001JUN22	445	500	forward 1	TM	Cytosolic
423	LG:025465.5:2001JUN22	501	523	forward 1	TM	Transmembrane
423	LG:025465.5:2001JUN22	524	708	forward 1	TM	Non-Cytosolic
423	LG:054509.14:2001JUN22	1	432	forward 1	TM	Non-Cytosolic
	LG:054509.14:2001JUN22	433	455	forward 1	TM	Transmembrane
424		456	567	forward 1	TM	Cytosolic
424	LG:054509.14:2001JUN22	568	590	forward 1	TM	-
424	LG:054509.14:2001JUN22					Transmembrane
424	LG:054509.14:2001JUN22	591	642	forward 1	TM	Non-Cytosolic
424	LG:054509.14:2001JUN22	643	665	forward 1	TM	Transmembrane
424	LG:054509.14:2001JUN22	666	717	forward 1	TM	Cytosolic
424	LG:054509.14:2001JUN22	718	740	forward 1	TM	Transmembrane
424	LG:054509.14:2001JUN22	741	752	forward 1	TM	Non-Cytosolic
424	LG:054509.14:2001JUN22	753	775	forward 1	TM	Transmembrane
424	LG:054509.14:2001JUN22	776	938	forward 1	TM	Cytosolic
424	LG:054509.14:2001JUN22	939	961	forward 1	TM	Transmembrane
424	LG:054509.14:2001JUN22	962	975	forward 1	TM	Non-Cytosolic
424	LG:054509.14:2001JUN22	976	998	forward 1	TM	Transmembrane
424	LG:054509.14:2001JUN22	999	1004	forward 1	TM	Cytosolic
424	LG:054509.14:2001JUN22	1005	1027	forward 1	TM	Transmembrane
424	LG:054509.14:2001JUN22	1028	1066	forward 1	TM	Non-Cytosolic
424	LG:054509.14:2001JUN22	1067	1089	forward 1	TM	Transmembrane
424	LG:054509.14:2001JUN22	1090	1134	forward 1	TM	Cytosolic
424	LG:054509.14:2001JUN22	1	2	forward 2	TM	Cytosolic
424	LG:054509.14:2001JUN22	3	20	forward 2	TM	Transmembrane
424	LG:054509.14:2001JUN22	21	61	forward 2	TM	Non-Cytosolic
424	LG:054509.14:2001JUN22	62	84	forward 2	TM	Transmembrane
424	LG:054509.14:2001JUN22	85	90	forward 2	TM	Cytosolic
424	LG:054509.14:2001JUN22	91	113	forward 2	TM	Transmembrane
		207	1			

SEQ D NO:   Template ID   Start   Stop   Frame   Domain Type   Topology   Topology   Template ID   Start   Stop   Frame   Domain Type   Topology   Template ID   Template ID   Start   Stop   Frame   Domain Type   Topology   Template ID   T	,		m. n.	D.0			
424					_		
424	-	•		-			
124							-
424         LG:054509.14:2001UN22         497         489         forward 2         TM         Transmembrane           424         LG:054509.14:2001UN22         761         forward 2         TM         Non-Cytosolic           424         LG:054509.14:2001UN22         761         813         forward 2         TM         Cytosolic           424         LG:054509.14:2001UN22         814         83         forward 2         TM         Transmembrane           424         LG:054509.14:2001UN22         814         83         forward 2         TM         Transmembrane           424         LG:054509.14:2001UN22         846         846         forward 2         TM         Transmembrane           424         LG:054509.14:2001UN22         970         1004         forward 2         TM         Tonsmembrane           424         LG:054509.14:2001UN22         970         1004         forward 2         TM         Tonsmembrane           424         LG:054509.14:2001UN22         1005         1027         forward 2         TM         Tonsmembrane           424         LG:054509.14:2001UN22         1067         1088         forward 2         TM         Non-Cytosolic           424         LG:054509.14:2001UN22         <							
1.   1.   1.   1.   1.   1.   1.   1.							
424   LG:054509.14:2001JUN22							
424							-
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424         LG:054509.14:2001JUN22         947         969         forward 2         TM         Transmembrane           424         LG:054509.14:2001JUN22         970         1004         forward 2         TM         Non-Cytosolic           424         LG:054509.14:2001JUN22         1028         1066         forward 2         TM         Transmembrane           424         LG:054509.14:2001JUN22         1067         1089         forward 2         TM         Non-Cytosolic           424         LG:054509.14:2001JUN22         1090         1134         forward 3         TM         Non-Cytosolic           424         LG:054509.14:2001JUN22         436         454         forward 3         TM         Non-Cytosolic           424         LG:054509.14:2001JUN22         455         466         forward 3         TM         Cytosolic           424         LG:054509.14:2001JUN22         490         503         forward 3         TM         Transmembrane           424         LG:054509.14:2001JUN22         504         523         forward 3         TM         Transmembrane           424         LG:054509.14:2001JUN22         504         523         forward 3         TM         Cytosolic           425         LG:							
100							•
1005   1027   forward 2   TM   Transmembrane   1024   LG:054509.14:2001JUN22   1028   1066   forward 2   TM   Cytosolic   1035							
1028   1066   forward 2   TM   Cytosolic   1024   LG:054509.14:2001JUN22   1090   1134   forward 2   TM   Non-Cytosolic   1025							-
1.63							
424							-
1							
424         LG:054509.14:2001JUN22         436         454         forward 3         TM         Transmembrane           424         LG:054509.14:2001JUN22         455         466         forward 3         TM         Cytosolic           424         LG:054509.14:2001JUN22         490         503         forward 3         TM         Non-Cytosolic           424         LG:054509.14:2001JUN22         504         523         forward 3         TM         Non-Cytosolic           424         LG:054509.14:2001JUN22         741         717         forward 3         TM         Cytosolic           424         LG:054509.14:2001JUN22         741         713         forward 3         TM         Cytosolic           424         LG:054509.14:2001JUN22         741         713         forward 3         TM         Transmembrane           424         LG:054509.14:2001JUN22         741         1133         forward 3         TM         Transmembrane           425         LG:1067876.1:2001JUN22         1         105         forward 2         TM         Non-Cytosolic           425         LG:1067876.1:2001JUN22         1         32         forward 1         TM         Cytosolic           426         LG:1327699.55:2001JUN2			•••				•
424         LG:054509.14:2001JUN22         455         466         forward 3         TM         Cytosolic           424         LG:054509.14:2001JUN22         467         489         forward 3         TM         Transmembrane           424         LG:054509.14:2001JUN22         490         503         forward 3         TM         Non-Cytosolic           424         LG:054509.14:2001JUN22         524         717         forward 3         TM         Cytosolic           424         LG:054509.14:2001JUN22         718         740         forward 3         TM         Transmembrane           424         LG:054509.14:2001JUN22         718         740         forward 3         TM         Transmembrane           425         LG:1067876.1:2001JUN22         741         1133         forward 2         TM         Non-Cytosolic           425         LG:1067876.1:2001JUN22         106         128         forward 2         TM         Cytosolic           425         LG:1067876.1:2001JUN22         106         128         forward 2         TM         Cytosolic           426         LG:1327699.55:2001JUN22         1         32         forward 1         TM         Cytosolic           426         LG:1327699.55:2001JUN22							
424         LG:054509.14:2001JUN22         467         489         forward 3         TM         Transmembrane           424         LG:054509.14:2001JUN22         490         503         forward 3         TM         Non-Cytosolic           424         LG:054509.14:2001JUN22         524         717         forward 3         TM         Cytosolic           424         LG:054509.14:2001JUN22         718         740         forward 3         TM         Cytosolic           424         LG:054509.14:2001JUN22         711         1133         forward 3         TM         Non-Cytosolic           425         LG:1067876.1:2001JUN22         1         105         forward 2         TM         Non-Cytosolic           425         LG:1067876.1:2001JUN22         106         128         forward 2         TM         Cytosolic           425         LG:1067876.1:2001JUN22         129         215         forward 2         TM         Cytosolic           426         LG:1327699.55:2001JUN22         1         32         forward 1         TM         Cytosolic           426         LG:1327699.55:2001JUN22         35         56         46         forward 1         TM         Transmembrane           426         LG:132							
424         LG:054509.14:2001JUN22         490         503         forward 3         TM         Non-Cytosolic           424         LG:054509.14:2001JUN22         504         523         forward 3         TM         Transmembrane           424         LG:054509.14:2001JUN22         524         717         forward 3         TM         Cytosolic           424         LG:054509.14:2001JUN22         718         740         forward 3         TM         Non-Cytosolic           425         LG:1067876.1:2001JUN22         1         105         forward 2         TM         Non-Cytosolic           425         LG:1067876.1:2001JUN22         106         128         forward 2         TM         Cytosolic           425         LG:1067876.1:2001JUN22         1         32         forward 2         TM         Cytosolic           426         LG:1327699.55:2001JUN22         1         32         forward 1         TM         Cytosolic           426         LG:1327699.55:2001JUN22         33         55         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         48         90         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>•</td>							•
424         LG:054509.14:2001JUN22         504         523         forward 3         TM         Transmembrane           424         LG:054509.14:2001JUN22         718         740         forward 3         TM         Cytosolic           424         LG:054509.14:2001JUN22         718         740         forward 3         TM         Non-Cytosolic           425         LG:1067876.1:2001JUN22         1         105         forward 2         TM         Non-Cytosolic           425         LG:1067876.1:2001JUN22         106         128         forward 2         TM         Transmembrane           425         LG:1067876.1:2001JUN22         129         215         forward 2         TM         Cytosolic           426         LG:1327699.55:2001JUN22         1         32         forward 1         TM         Cytosolic           426         LG:1327699.55:2001JUN22         33         55         forward 1         TM         Transmembrane           426         LG:1327699.55:2001JUN22         65         87         forward 1         TM         Transmembrane           427         LG:1482904.10:2001JUN22         1         323         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN							
424         LG:054509.14:2001JUN22         524         717         forward 3         TM         Cytosolic           424         LG:054509.14:2001JUN22         718         740         forward 3         TM         Transmembrane           424         LG:054509.14:2001JUN22         71         1133         forward 3         TM         Non-Cytosolic           425         LG:1067876.1:2001JUN22         106         128         forward 2         TM         Non-Cytosolic           425         LG:1067876.1:2001JUN22         106         128         forward 2         TM         Cytosolic           426         LG:1327699.55:2001JUN22         1         32         forward 1         TM         Cytosolic           426         LG:1327699.55:2001JUN22         3         35         forward 1         TM         Non-Cytosolic           426         LG:1327699.55:2001JUN22         65         87         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         88         90         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         1         323         forward 1         TM         Transmembrane           427         LG:1482904.10:2001JUN22 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>•</td>							•
424         LG:054509.14:2001JUN22         718         740         forward 3         TM         Transmembrane           424         LG:054509.14:2001JUN22         741         1133         forward 3         TM         Non-Cytosolic           425         LG:1067876.1:2001JUN22         1         105         forward 2         TM         Non-Cytosolic           425         LG:1067876.1:2001JUN22         129         215         forward 2         TM         Cytosolic           425         LG:1067876.1:2001JUN22         129         215         forward 2         TM         Cytosolic           426         LG:1327699.55:2001JUN22         33         55         forward 1         TM         Cytosolic           426         LG:1327699.55:2001JUN22         56         64         forward 1         TM         Non-Cytosolic           426         LG:1327699.55:2001JUN22         88         90         forward 1         TM         Transmembrane           426         LG:1327699.55:2001JUN22         88         90         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         1         323         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22							
424         LG:054509.14:2001JUN22         741         1133         forward 3         TM         Non-Cytosolic           425         LG:1067876.1:2001JUN22         1         105         forward 2         TM         Non-Cytosolic           425         LG:1067876.1:2001JUN22         106         128         forward 2         TM         Transmembrane           425         LG:1067876.1:2001JUN22         129         215         forward 1         TM         Cytosolic           426         LG:1327699.55:2001JUN22         33         55         forward 1         TM         Transmembrane           426         LG:1327699.55:2001JUN22         56         64         forward 1         TM         Non-Cytosolic           426         LG:1327699.55:2001JUN22         65         87         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         1         323         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         342         341         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         342         420         forward 1         TM         Transmembrane           427         LG:1482904.10							
425         LG:1067876.1:2001JUN22         1         105         forward 2         TM         Non-Cytosolic           425         LG:1067876.1:2001JUN22         106         128         forward 2         TM         Transmembrane           425         LG:1067876.1:2001JUN22         129         215         forward 2         TM         Cytosolic           426         LG:1327699.55:2001JUN22         3         32         forward 1         TM         Cytosolic           426         LG:1327699.55:2001JUN22         56         64         forward 1         TM         Non-Cytosolic           426         LG:1327699.55:2001JUN22         65         87         forward 1         TM         Non-Cytosolic           426         LG:1327699.55:2001JUN22         88         90         forward 1         TM         Transmembrane           426         LG:1327699.55:2001JUN22         88         90         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         1         323         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         342         341         forward 1         TM         Transmembrane           427         LG:1482904.10:2001JUN2							
425         LG:1067876.1:2001JUN22         106         128         forward 2         TM         Transmembrane           425         LG:1067876.1:2001JUN22         129         215         forward 2         TM         Cytosolic           426         LG:1327699.55:2001JUN22         3         55         forward 1         TM         Cytosolic           426         LG:1327699.55:2001JUN22         56         64         forward 1         TM         Non-Cytosolic           426         LG:1327699.55:2001JUN22         65         87         forward 1         TM         Non-Cytosolic           426         LG:1327699.55:2001JUN22         65         87         forward 1         TM         Transmembrane           426         LG:1327699.55:2001JUN22         88         90         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         1         323         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         342         420         forward 1         TM         Transmembrane           427         LG:1482904.10:2001JUN22         342         420         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001J							
425         LG:1067876.1:2001JUN22         129         215         forward 1         TM         Cytosolic           426         LG:1327699.55:2001JUN22         1         32         forward 1         TM         Cytosolic           426         LG:1327699.55:2001JUN22         56         64         forward 1         TM         Non-Cytosolic           426         LG:1327699.55:2001JUN22         65         87         forward 1         TM         Non-Cytosolic           426         LG:1327699.55:2001JUN22         88         90         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         1         323         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         342         341         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         342         420         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         342         420         forward 1         TM         Transmembrane           427         LG:1482904.10:2001JUN22         421         443         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22<						•	
426         LG:1327699.55:2001JUN22         1         32         forward 1         TM         Cytosolic           426         LG:1327699.55:2001JUN22         33         55         forward 1         TM         Transmembrane           426         LG:1327699.55:2001JUN22         56         64         forward 1         TM         Non-Cytosolic           426         LG:1327699.55:2001JUN22         88         90         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         1         323         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         342         341         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         342         420         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         342         420         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         421         443         forward 1         TM         Transmembrane           427         LG:1482904.10:2001JUN22         850         869         forward 1         TM         Transmembrane           427         LG:1482904.10:2001J			100				
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426         LG:1327699.55:2001JUN22         56         64         forward 1         TM         Non-Cytosolic           426         LG:1327699.55:2001JUN22         65         87         forward 1         TM         Transmembrane           426         LG:1327699.55:2001JUN22         88         90         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         324         341         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         342         420         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         342         420         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         342         420         forward 1         TM         Transmembrane           427         LG:1482904.10:2001JUN22         421         443         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         424         849         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         870         1015         forward 2         TM         Non-Cytosolic           427         LG:148290							-
426         LG:1327699.55:2001JUN22         65         87         forward 1         TM         Transmembrane           426         LG:1327699.55:2001JUN22         88         90         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         1         323         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         342         341         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         342         420         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         421         443         forward 1         TM         Transmembrane           427         LG:1482904.10:2001JUN22         444         849         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         850         869         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         870         1015         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         960         982         forward 2         TM         Non-Cytosolic           427         LG:1482904.10:200							
426         LG:1327699.55:2001JUN22         88         90         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         1         323         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         324         341         forward 1         TM         Transmembrane           427         LG:1482904.10:2001JUN22         421         443         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         421         443         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         444         849         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         850         869         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         870         1015         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         1         959         forward 2         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         983         1014         forward 2         TM         Cytosolic           427         LG:1482904.10:20							=
427         LG:1482904.10:2001JUN22         1         323         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         324         341         forward 1         TM         Transmembrane           427         LG:1482904.10:2001JUN22         342         420         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         421         443         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         850         869         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         870         1015         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         1         959         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         1         959         forward 2         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         983         1014         forward 2         TM         Cytosolic           427         LG:1482904.10:2001JUN22         1         676         forward 3         TM         Non-Cytosolic           427         LG:1482904							
427         LG:1482904.10:2001JUN22         324         341         forward 1         TM         Transmembrane           427         LG:1482904.10:2001JUN22         342         420         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         421         443         forward 1         TM         Transmembrane           427         LG:1482904.10:2001JUN22         444         849         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         850         869         forward 1         TM         Transmembrane           427         LG:1482904.10:2001JUN22         870         1015         forward 2         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         1         959         forward 2         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         960         982         forward 2         TM         Transmembrane           427         LG:1482904.10:2001JUN22         983         1014         forward 2         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         677         699         forward 3         TM         Transmembrane           427							
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427         LG:1482904.10:2001JUN22         421         443         forward 1         TM         Transmembrane           427         LG:1482904.10:2001JUN22         444         849         forward 1         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         850         869         forward 1         TM         Cytosolic           427         LG:1482904.10:2001JUN22         870         1015         forward 2         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         960         982         forward 2         TM         Transmembrane           427         LG:1482904.10:2001JUN22         983         1014         forward 2         TM         Cytosolic           427         LG:1482904.10:2001JUN22         983         1014         forward 3         TM         Non-Cytosolic           427         LG:1482904.10:2001JUN22         1         676         forward 3         TM         Transmembrane           427         LG:1482904.10:2001JUN22         700         918         forward 3         TM         Transmembrane           427         LG:1482904.10:2001JUN22         942         960         forward 3         TM         Non-Cytosolic           427 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>							
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428 LG:222317.4:2001JUN22 5 27 forward 2 TM Transmembrane							-
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#### TABLE 2 Domain Type Stop Topology Start Frame SEQ D NO: Template ID Non-Cytosolic 428 LG:222317.4:2001JUN22 1 23 forward 3 TM 24 46 forward 3 TM Transmembrane 428 LG:222317.4:2001JUN22 47 84 forward 3 TM Cytosolic 428 LG:222317.4:2001JUN22 forward 1 Non-Cytosolic 1 1342 TM 429 LG:332701.3:2001JUN22 429 LG:332701.3:2001JUN22 1343 1365 forward 1 TM Transmembrane 429 LG:332701.3:2001JUN22 1366 1542 forward 1 TM. Cytosolic 1 125 forward 2 TM Non-Cytosolic 429 LG:332701.3:2001JUN22 126 148 forward 2 TM Transmembrane 429 LG:332701.3:2001JUN22 178 forward 2 TM Cytosolic 429 LG:332701.3:2001JUN22 149 179 201 forward 2 TM Transmembrane 429 LG:332701.3:2001JUN22 LG:332701.3:2001JUN22 202 224 forward 2 TM Non-Cytosolic 429 225 247 forward 2 TM Transmembrane 429 LG:332701.3:2001JUN22 248 259 forward 2 TM Cytosolic 429 LG:332701.3:2001JUN22 429 LG:332701.3:2001JUN22 260 282 forward 2 TM Transmembrane 429 LG:332701.3:2001JUN22 283 286 forward 2 TM Non-Cytosolic 429 LG:332701.3:2001JUN22 287 309 forward 2 TM Transmembrane 507 TM Cytosolic 429 LG:332701.3:2001JUN22 310 forward 2 530 Transmembrane 429 LG:332701.3:2001JUN22 508 forward 2 TM Non-Cytosolic 429 LG:332701.3:2001JUN22 531 983 forward 2 TM 984 1006 forward 2 TM Transmembrane 429 LG:332701.3:2001JUN22 Cytosolic 429 LG:332701.3:2001JUN22 1007 1054 forward 2 TM 1055 1077 forward 2 TM Transmembrane 429 LG:332701.3:2001JUN22 Non-Cytosolic 1541 forward 2 TM 429 1078 LG:332701.3:2001JUN22 Non-Cytosolic 223 forward 3 TM 429 LG:332701.3:2001JUN22 1 Transmembrane 429 LG:332701.3:2001JUN22 224 246 forward 3 TM ., 247 507 forward 3 TM Cytosolic 429 LG:332701.3:2001JUN22 530 Transmembrane 429 LG:332701.3:2001JUN22 508 forward 3 TM 531 1541 forward 3 TM Non-Cytosolic 429 LG:332701.3:2001JUN22 311 forward 3 TM Non-Cytosolic 430 LG:369881.5:2001JUN22 1 312 334 forward 3 TM Transmembrane 430 LG:369881.5:2001JUN22 430 LG:369881.5:2001JUN22 335 346 forward 3 TM Cytosolic 430 LG:369881.5:2001JUN22 347 369 forward 3 TM Transmembrane 370 383 Non-Cytosolic 430 LG:369881.5:2001JUN22 forward 3 TM LG:369881.5:2001JUN22 384 406 forward 3 TM Transmembrane 430 435 forward 3 Cytosolic 407 TM 430 LG:369881.5:2001JUN22 Cytosolic 34 forward 2 TM 431 LG:404381.2:2001JUN22 1 57 Transmembrane 431 LG:404381.2:2001JUN22 35 forward 2 TM 58 66 forward 2 TM Non-Cytosolic 431 LG:404381.2:2001JUN22 67 89 Transmembrane 431 LG:404381.2:2001JUN22 forward 2 TM 90 100 forward 2 TM Cytosolic 431 LG:404381.2:2001JUN22 101 123 forward 2 TM Transmembrane 431 LG:404381.2:2001JUN22 132 Non-Cytosolic 431 LG:404381.2:2001JUN22 124 forward 2 TM LG:404381.2:2001JUN22 133 155 forward 2 TM Transmembrane 431 192 431 LG:404381.2:2001JUN22 156 forward 2 TM Cytosolic LG:404381.2:2001JUN22 193 215 forward 2 TM Transmembrane 431 271 forward 2 TM Non-Cytosolic LG:404381.2:2001JUN22 216 431 294 Transmembrane 431 LG:404381.2:2001JUN22 272 forward 2 TM LG:404381.2:2001JUN22 295 302 forward 2 TM Cytosolic 431 431 LG:404381.2:2001JUN22 303 325 forward 2 TM Transmembrane 431 LG:404381.2:2001JUN22 326 339 forward 2 TM Non-Cytosolic LG:404381.2:2001JUN22 340 359 forward 2 TM Transmembrane 431 431 LG:404381.2:2001JUN22 360 466 forward 2 TM Cytosolic 432 LG:405709.2:2001JUN22 1 75 forward 2 TM Cytosolic 76 94 forward 2 Transmembrane 432 LG:405709.2:2001JUN22 TM

		IABL				
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
432	LG:405709.2:2001JUN22	95	113	forward 2	TM	Non-Cytosolic
432	LG:405709.2:2001JUN22	1	113	forward 3	TM	Cytosolic
433	LG:406664.17:2001JUN22	1	73	forward 1	TM	Cytosolic
434	LG:7670681.1:2001JUN22	1	187	forward 2	TM	Non-Cytosolic
434	LG:7670681.1:2001JUN22	188	210	forward 2	TM	Transmembrane
434	LG:7670681.1:2001JUN22	211	216	forward 2	TM	Cytosolic
434	LG:7670681.1:2001JUN22	1	37	forward 3	TM	Non-Cytosolic
434	LG:7670681.1:2001JUN22	38	60	forward 3	TM	Transmembrane
434	LG:7670681.1:2001JUN22	61	215	forward 3	TM	Cytosolic
435	LG:7687404.1:2001JUN22	1	114	forward 3	TM	Non-Cytosolic
435	LG:7687404.1:2001JUN22	115	137	forward 3	TM	Transmembrane
435	LG:7687404.1:2001JUN22	138	225	forward 3	TM	Cytosolic
435	LG:7687404.1:2001JUN22	226	248	forward 3	TM	Transmembrane
435	LG:7687404.1:2001JUN22	249	370	forward 3	TM	Non-Cytosolic
436	LG:7690030.24:2001JUN22	1	129	forward 1	TM	Cytosolic
436	LG:7690030.24:2001JUN22	1	128	forward 2	TM	Cytosolic
437	LG:7690030.24.2001JUN22 LG:7690229.3:2001JUN22	1	20	forward 3	TM	Cytosolic
	LG:7690229.3:2001JUN22		40	forward 3	TM	-
437 437 ·		21				Transmembrane
,	LG:7690229.3:2001JUN22	41	223	forward 3	TM	Non-Cytosolic
438	LG:7690533.16:2001JUN22	1	9	forward 2	TM	Non-Cytosolic
438	LG:7690533.16:2001JUN22	10	29	forward 2	TM	Transmembrane
438	LG:7690533.16:2001JUN22	30	48	forward 2	TM	Cytosolic
438	LG:7690533.16:2001JUN22	49	71	forward 2	TM	Transmembrane
438	LG:7690533.16:2001JUN22	72	393	forward 2		Non-Cytosolic
439	LG:7691131.2:2001JUN22	1	22	forward 1	TM	Non-Cytosolic
439	LG:7691131.2:2001JUN22	23		forward 1	TM	Transmembrane
439	LG:7691131.2:2001JUN22	46	331		TM	Cytosolic
439	LG:7691131.2:2001JUN22	1	101	forward 3	TM	Non-Cytosolic
439	LG:7691131.2:2001JUN22	102	124	forward 3		Transmembrane
439	LG:7691131.2:2001JUN22	125	287	forward 3	TM	Cytosolic
439	LG:7691131.2:2001JUN22	288	307	forward 3	TM	Transmembrane
439	LG:7691131.2:2001JUN22	308	330	forward 3	TM	Non-Cytosolic
440	LG:7692559.6:2001JUN22	1	3	forward 1	TM	Non-Cytosolic
440	LG:7692559.6:2001JUN22	4	23	forward 1	TM	Transmembrane
440	LG:7692559.6:2001JUN22	24	35	forward 1	TM	Cytosolic
440	LG:7692559.6:2001JUN22	36	53	forward 1	TM	Transmembrane
440	LG:7692559.6:2001JUN22	54	239	forward 1	TM	Non-Cytosolic
440	LG:7692559.6:2001JUN22	1	48	forward 3	TM	Non-Cytosolic
440	LG:7692559.6:2001JUN22	49	71	forward 3	TM	Transmembrane
440	LG:7692559.6:2001JUN22	72	75	forward 3	TM	Cytosolic
440	LG:7692559.6:2001JUN22	76	98	forward 3	TM	Transmembrane
440	LG:7692559.6:2001JUN22	99	238	forward 3	TM	Non-Cytosolic
441	LG:7684866.10:2001JUN22	1	56	forward 2	TM	Cytosolic
441	LG:7684866.10:2001JUN22	57	79	forward 2	TM	Transmembrane
441	LG:7684866.10:2001JUN22	80	93	forward 2	TM	Non-Cytosolic
441	LG:7684866.10:2001JUN22	94	116	forward 2	TM	Transmembrane
441	LG:7684866.10:2001JUN22	117	170	forward 2	TM	Cytosolic
. 442	LG:002106.5:2001JUN22	1	344	forward 2	TM	Non-Cytosolic
442	LG:002106.5:2001JUN22	345	367	forward 2	TM	Transmembrane
442	LG:002106.5:2001JUN22	368	387	forward 2	TM	Cytosolic
442	LG:002106.5:2001JUN22	388	410	forward 2	TM	Transmembrane
442	LG:002106.5:2001JUN22	411	419	forward 2	TM	Non-Cytosolic
442	LG:002106.5:2001JUN22	420	439	forward 2	TM	Transmembrane
442	LG:002106.5:2001JUN22	440	548	forward 2	TM	Cytosolic
		210			- 17-	- 3 - 2

		TABL	E 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology .
442	LG:002106.5:2001JUN22	1	386	forward 3	TM	Non-Cytosolic
442	LG:002106.5:2001JUN22	387	409	forward 3	TM	Transmembrane
442	LG:002106.5:2001JUN22	410	420	forward 3	TM	Cytosolic
442	LG:002106.5:2001JUN22	421	443	forward 3	TM	Transmembrane
442	LG:002106.5:2001JUN22	444	548	forward 3	TM	Non-Cytosolic
443	LG:004064.1:2001JUN22	1	20	forward 1	TM	Cytosolic
443	LG:004064.1:2001JUN22	21	43	forward 1	TM	Transmembrane
443	LG:004064.1:2001JUN22	44	335	forward 1	TM	Non-Cytosolic
443	LG:004064.1:2001JUN22	1	47	forward 2	TM	Non-Cytosolic
443	LG:004064.1:2001JUN22	48	70	forward 2	TM	Transmembrane
443	LG:004064.1:2001JUN22	71	335	forward 2	TM	Cytosolic
443	LG:004064.1:2001JUN22	1	47	forward 3	TM	Non-Cytosolic
443	LG:004064.1:2001JUN22	48	70	forward 3	TM	Transmembrane
443	LG:004064.1:2001JUN22	71	208	forward 3	TM	Cytosolic
443	LG:004064.1:2001JUN22	209	228	forward 3	TM	Transmembrane
443	LG:004064.1:2001JUN22	229	267	forward 3	TM	Non-Cytosolic
443	LG:004064.1:2001JUN22	268	290	forward 3	TM	Transmembrane
443	LG:004064.1:2001JUN22	291	335	forward 3	TM	Cytosolic
444	LG:007916.8:2001JUN22	1	159	forward 1	TM	Cytosolic
444	LG:007916.8:2001JUN22	160	182	forward 1	TM	Transmembrane
444	LG:007916.8:2001JUN22	183	499	forward 1	TM	Non-Cytosolic
445	LG:014719.14:2001JUN22	1	913	forward 1	TM	Non-Cytosolic
445	LG:014719.14:2001JUN22	914	936	forward 1	TM	Transmembrane
445	LG:014719.14:2001JUN22	937	966	forward 1	TM ·	Cytosolic
445	LG:014719.14:2001JUN22	1	915	forward 2	·TM	Non-Cytosolic
445	LG:014719.14:2001JUN22	916		forward 2	TM	Transmembrane
445	LG:014719.14:2001JUN22	939		forward 2	TM	Cytosolic
446	LG:021763.31:2001JUN22			forward 3	· SP	•
446	LG:021763.31:2001JUN22	1		forward 3	TM	Non-Cytosolic
446	LG:021763.31:2001JUN22	132	154	forward 3	TM	Transmembrane
446	LG:021763.31:2001JUN22	. 155	233	forward 3	TM	Cytosolic
447	LG:025397.1:2001JUN22	1	40	forward 3	TM	Cytosolic
447	LG:025397.1:2001JUN22	41	63	forward 3	TM	Transmembrane
447	LG:025397.1:2001JUN22	64	77	forward 3	TM	Non-Cytosolic
447	LG:025397.1:2001JUN22	78	100	forward 3	TM	Transmembrane
447	LG:025397.1:2001JUN22	101	112	forward 3	TM	Cytosolic
447	LG:025397.1:2001JUN22	113	132	forward 3	TM	Transmembrane
447	LG:025397.1:2001JUN22	133	879	forward 3	TM	Non-Cytosolic
448	LG:029880.20:2001JUN22	1	399	forward 2	TM	Non-Cytosolic
448	LG:029880.20:2001JUN22	400	422	forward 2	TM	Transmembrane
448	LG:029880.20:2001JUN22	423	434	forward 2	TM	Cytosolic
448	LG:029880.20:2001JUN22	435	457	forward 2	TM	Transmembrane
448	LG:029880.20:2001JUN22	458	1076	forward 2	TM	Non-Cytosolic
448	LG:029880.20:2001JUN22	1	316	forward 3	TM	Non-Cytosolic
448	LG:029880.20:2001JUN22	317	339	forward 3	TM	Transmembrane
448	LG:029880.20:2001JUN22	340	565	forward 3	TM	Cytosolic
448	LG:029880.20:2001JUN22	566	588	forward 3	TM	Transmembrane
448	LG:029880.20:2001JUN22	589	1075		TM	Non-Cytosolic
449	LG:040422.37:2001JUN22	1	344	forward 1	TM	Cytosolic
449	LG:040422.37:2001JUN22	345	367	forward 1	TM	Transmembrane
449	LG:040422.37:2001JUN22	368	386	forward 1	TM	Non-Cytosolic
449	LG:040422.37:2001JUN22	387	409	forward 1	TM	Transmembrane
449	LG:040422.37:2001JUN22	410	447	forward 1	TM	Cytosolic
449	LG:040422.37:2001JUN22	448	470	forward 1	TM	Transmembrane
		211				

TABLE 2							
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology	
449	LG:040422.37:2001JUN22	471	542	forward 1	TM	Non-Cytosolic	
449	LG:040422.37:2001JUN22	543	565	forward 1	TM	Transmembrane	
449	LG:040422.37:2001JUN22	566	639	forward 1	TM	Cytosolic	
449	LG:040422.37:2001JUN22	640	662	forward 1	TM	Transmembrane	
449	LG:040422.37:2001JUN22	663	671	forward 1	· TM	Non-Cytosolic	
449	LG:040422.37:2001JUN22	672	694	forward 1	TM	Transmembrane	
449	LG:040422.37:2001JUN22	695	747	forward 1	TM	Cytosolic	
449	LG:040422.37:2001JUN22	748	770	forward 1	TM	Transmembrane	
449	LG:040422.37:2001JUN22	771	795	forward 1	TM	Non-Cytosolic	
449	LG:040422.37:2001JUN22	796	814	forward 1	TM	Transmembrane	
449	LG:040422.37:2001JUN22	815	820	forward 1	TM	Cytosolic	
449	LG:040422.37:2001JUN22	821	843	forward 1	TM	Transmembrane	
449	LG:040422.37:2001JUN22	844	1065	forward 1	TM	Non-Cytosolic	
449	LG:040422.37:2001JUN22	1	640	forward 2	TM	Non-Cytosolic	
449	LG:040422.37:2001JUN22	641	663	forward 2	TM	Transmembrane	
449	LG:040422.37:2001JUN22	664	674	forward 2	TM	Cytosolic	
449	LG:040422.37:2001JUN22	675	696	forward 2	TM	Transmembrane	
449	LG:040422.37:2001JUN22	697	742	forward 2	TM	Non-Cytosolic	
449	LG:040422.37:2001JUN22	743	765	forward 2	TM	Transmembrane	
449	LG:040422.37:2001JUN22	766	803	forward 2	TM	Cytosolic	
449	LG:040422.37:2001JUN22	804	826	forward 2	TM	Transmembrane	
449	LG:040422.37:2001JUN22	827	925	forward 2	TM	Non-Cytosolic	
449	LG:040422.37:2001JUN22	926	948	forward 2	TM	Transmembrane	
449	LG:040422.37:2001JUN22	949	1065	forward 2		Cytosolic	
449	LG:040422.37:2001JUN22	1	575	forward 3	TM	Non-Cytosolic	
449	LG:040422.37:2001JUN22	. 576	598	forward 3	TM	Transmembrane	
449	LG:040422.37:2001JUN22	599	622	forward 3	· TM	Cytosolic	
449	LG:040422.37:2001JUN22	623	645	forward 3	TM	Transmembrane	
449	LG:040422.37:2001JUN22	646	649	forward 3	TM	Non-Cytosolic	
449	LG:040422.37:2001JUN22	650	672	forward 3	TM	Transmembrane	
449	LG:040422.37:2001JUN22	673	746	forward 3	TM	Cytosolic	
449	LG:040422.37:2001JUN22	747	769	forward 3	TM	Transmembrane	
449	LG:040422.37:2001JUN22	770	1064	forward 3	TM	Non-Cytosolic	
450	LG:065935.11:2001JUN22	1	9	forward 1	TM	Non-Cytosolic	
450	LG:065935.11:2001JUN22	10	27	forward 1	TM	Transmembrane	
450	LG:065935.11:2001JUN22	28	46	forward 1	TM	Cytosolic	
450	LG:065935.11:2001JUN22	47	69	forward 1	TM	Transmembrane	
450	LG:065935.11:2001JUN22	70	1451	forward 1	TM	Non-Cytosolic	
450	LG:065935.11:2001JUN22	1	33	forward 2	TM	Cytosolic	
450	LG:065935.11:2001JUN22	34	56	forward 2	TM	Transmembrane	
450	LG:065935.11:2001JUN22	57	65	forward 2	TM	Non-Cytosolic	
450	LG:065935.11:2001JUN22	66	88	forward 2	TM	Transmembrane	
450	LG:065935.11:2001JUN22	89	312	forward 2	TM	Cytosolic	
450	LG:065935.11:2001JUN22	313	335	forward 2	TM	Transmembrane	
450	LG:065935.11:2001JUN22	336	370	forward 2	TM	Non-Cytosolic	
450	LG:065935.11:2001JUN22	371	393	forward 2	TM	Transmembrane	
450	LG:065935.11:2001JUN22	394	449	forward 2	TM	Cytosolic	
450	LG:065935.11:2001JUN22	450	472	forward 2	TM	Transmembrane	
450	LG:065935.11:2001JUN22	473	498	forward 2	TM	Non-Cytosolic	
450	LG:065935.11:2001JUN22	499	518	forward 2	TM	Transmembrane	
450	LG:065935.11:2001JUN22	519	538	forward 2	TM	Cytosolic	
450	LG:065935.11:2001JUN22	539	561	forward 2	TM	Transmembrane	
450	LG:065935.11:2001JUN22	562	1450	forward 2	TM	Non-Cytosolic	
450	LG:065935.11:2001JUN22	1	9	forward 3	TM	Non-Cytosolic	
		212	!				

#### TABLE 2 Template ID Stop Frame Domain Type Topology SEO D NO: Start 450 LG:065935.11:2001JUN22 10 27 forward 3 TM Transmembrane LG:065935.11:2001JUN22 28 39 forward 3 TM Cytosolic 450 40 62 forward 3 TM Transmembrane 450 LG:065935.11:2001JUN22 63 71 forward 3 TM Non-Cytosolic 450 LG:065935.11:2001JUN22 94 450 72 forward 3 TM Transmembrane LG:065935.11:2001JUN22 95 370 forward 3 TM Cytosolic 450 LG:065935.11:2001JUN22 371 393 forward 3 TM Transmembrane 450 LG:065935.11:2001JUN22 394 1182 forward 3 TM Non-Cytosolic 450 LG:065935.11:2001JUN22 1183 1202 forward 3 TM Transmembrane 450 LG:065935.11:2001JUN22 1395 forward 3 TM 1203 Cytosolic 450 LG:065935.11:2001JUN22 TM 1396 1418 forward 3 Transmembrane 450 LG:065935.11:2001JUN22 Non-Cytosolic 450 LG:065935.11:2001JUN22 1419 1450 forward 3 TM TM Non-Cytosolic 451 LG:074381.1:2001JUN22 1 318 forward 2 . 341 forward 2 TM Transmembrane 451 LG:074381.1:2001JUN22 319 TM 361 forward 2 Cytosolic LG:074381.1:2001JUN22 342 451 384 TM Transmembrane 451 LG:074381.1:2001JUN22 362 forward 2 451 LG:074381.1:2001JUN22 385 421 forward 2 TM Non-Cytosolic TM Non-Cytosolic 451 LG:074381.1:2001JUN22 1 229 forward 3 451 LG:074381.1:2001JUN22 230 252 forward 3 TM Transmembrane 253 256 forward 3 TM Cytosolic 451 LG:074381.1:2001JUN22 257 279 Transmembrane 451 LG:074381.1:2001JUN22 forward 3 TM 451 LG:074381.1:2001JUN22 280 317 forward 3 TM Non-Cytosolic 451 LG:074381.1:2001JUN22 318 340 forward 3 TM Transmembrane 451 LG:074381.1:2001JUN22 341 352 forward 3 TM Cytosolic 375 forward 3 451 LG:074381.1:2001JUN22 353 TM Transmembrane 394 forward 3 Non-Cytosolic 451 LG:074381:1:2001JUN22 376 TM 417 TM Transmembrane 451 LG:074381.1:2001JUN22 395 forward 3 451 LG:074381.1:2001JUN22 418 421 forward 3 TM Cytosolic 452 LG:083814.6:2001JUN22 736 forward 1 TM Non-Cytosolic 1 Transmembrane 452 LG:083814.6:2001JUN22 737 756 forward 1 TM 452 790 forward 1 Cytosolic LG:083814.6:2001JUN22 757 TM 452 791 809 forward 1 TM Transmembrane LG:083814.6:2001JUN22 452 817 Non-Cytosolic LG:083814.6:2001JUN22 810 forward 1 TM 452 LG:083814.6:2001JUN22 757 forward 3 TM Non-Cytosolic 1 452 758 777 forward 3 TM Transmembrane LG:083814.6:2001JUN22 452 778 788 forward 3 TM Cytosolic LG:083814.6:2001JUN22 452 789 806 forward 3 TM Transmembrane LG:083814.6:2001JUN22 452 807 816 forward 3 TM Non-Cytosolic LG:083814.6:2001JUN22 453 LG:090985.1:2001JUN22 1 11 forward 3 TM Cytosolic 453 LG:090985.1:2001JUN22 12 34 forward 3 TM Transmembrane Non-Cytosolic 453 LG:090985.1:2001JUN22 35 37 forward 3 TM 453 38 60 forward 3 TM Transmembrane LG:090985.1:2001JUN22 453 61 206 forward 3 Cytosolic LG:090985.1:2001JUN22 TM 392 Non-Cytosolic 454 LG:093750.2:2001JUN22 1 forward 2 TM 454 393 410 forward 2 TM Transmembrane LG:093750.2:2001JUN22 454 Cytosolic LG:093750.2:2001JUN22 411 411 forward 2 TM 455 77 forward 1 Cytosolic LG:1013708.26:2001JUN22 1 TM 455 78 95 LG:1013708.26:2001JUN22 forward 1 Transmembrane TM 109 Non-Cytosolic 455 LG:1013708.26:2001JUN22 96 forward 1 TM 455 LG:1013708.26:2001JUN22 110 132 forward 1 Transmembrane TM 455 Cytosolic LG:1013708.26:2001JUN22 133 147 forward I TM forward 1 455 148 170 Transmembrane LG:1013708.26:2001JUN22 TM 455 171 558 Non-Cytosolic LG:1013708.26:2001JUN22 forward 1 TM 455 74 Cytosolic LG:1013708.26:2001JUN22 1 forward 2 TM

		IADL	JE Z			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
455	LG:1013708.26:2001JUN22	75	97	forward 2	TM	Transmembrane
455	LG:1013708.26:2001JUN22	98	100	forward 2	TM	Non-Cytosolic
455	LG:1013708.26:2001JUN22	101	120	forward 2	TM	Transmembrane
455	LG:1013708.26:2001JUN22	121	369	forward 2	TM	Cytosolic
455	LG:1013708.26:2001JUN22	370	392	forward 2	TM	Transmembrane
455	LG:1013708.26:2001JUN22	393	558	forward 2	TM	Non-Cytosolic
455	LG:1013708.26:2001JUN22	1	77	forward 3	TM	Cytosolic
455	LG:1013708.26:2001JUN22	78	100	forward 3	TM	Transmembrane
455	LG:1013708.26:2001JUN22	101	103	forward 3	TM	Non-Cytosolic
455	LG:1013708.26:2001JUN22	104	126	forward 3	TM	Transmembrane
455	LG:1013708.26:2001JUN22	127	146	forward 3	TM	Cytosolic
455	LG:1013708.26:2001JUN22	147	166	forward 3	TM	Transmembrane
455	LG:1013708.26:2001JUN22	167	557	forward 3	TM	Non-Cytosolic
456	LG:1022283.8:2001JUN22	1	1703	forward 1	TM	Non-Cytosolic
456	LG:1022283.8:2001JUN22	1704	1726	forward 1	TM	Transmembrane
456	LG:1022283.8:2001JUN22	1727	1903	forward 1	TM	Cytosolic
456	LG:1022283.8:2001JUN22	1904	1926	forward 1	TM	Transmembrane
456	LG:1022283.8:2001JUN22	1927	2059	forward 1	TM	Non-Cytosolic
456	LG:1022283.8:2001JUN22	2060	2082	forward 1	TM	Transmembrane
456	LG:1022283.8:2001JUN22	2083	2182	forward 1	TM	Cytosolic
456	LG:1022283.8:2001JUN22	2183	2201	forward 1	TM	Transmembrane
456	LG:1022283.8:2001JUN22	2202	2231	forward 1	TM	Non-Cytosolic
456	LG:1022283.8:2001JUN22	2232	2251	forward 1	TM	Transmembrane
456 456	LG:1022283.8:2001JUN22	2252	2390	forward 1	TM	Cytosolic
456	LG:1022283.8:2001JUN22	1	1894	forward 2	TM	Non-Cytosolic
456	LG:1022283.8:2001JUN22	1895	1917	forward 2	TM	Transmembrane
456	LG:1022283.8:2001JUN22	1918	2060	forward 2	TM	Cytosolic
456 456	LG:1022283.8:2001JUN22	2061	2083	forward 2	TM	Transmembrane
456	LG:1022283.8:2001JUN22	2084	2173	forward 2	TM	Non-Cytosolic
456	LG:1022283.8:2001JUN22	2174	2175	forward 2	TM	Transmembrane
456 456	LG:1022283.8:2001JUN22	2174	2207	forward 2	TM	Cytosolic
	LG:1022283.8:2001JUN22	2208	2225	forward 2	TM	Transmembrane
456 456	LG:1022283.8:2001JUN22	2226	2229	forward 2	TM	Non-Cytosolic
456 456	LG:1022283.8:2001JUN22	2230	2252	forward 2	TM	Transmembrane
		2253	2264	forward 2	TM	Cytosolic
456	LG:1022283.8:2001JUN22 LG:1022283.8:2001JUN22	2265	2284	forward 2	TM	Transmembrane
456		2285	2390	forward 2	TM	Non-Cytosolic
456	LG:1022283.8:2001JUN22		1894	forward 3	TM	Non-Cytosolic
456	LG:1022283.8:2001JUN22	1 1895	1917	forward 3	TM	Transmembrane
456	LG:1022283.8:2001JUN22		2057		TM	Cytosolic
456	LG:1022283.8:2001JUN22	1918 2058	2077	forward 3 forward 3	TM	Transmembrane
456	LG:1022283.8:2001JUN22					Non-Cytosolic
456	LG:1022283.8:2001JUN22	2078	2229	forward 3	TM	Transmembrane
456	LG:1022283.8:2001JUN22	2230	2252		TM	Cytosolic
456	LG:1022283.8:2001JUN22	2253	2389	forward 3	TM	•
457	LG:1034386.1:2001JUN22	1	37	forward 1	TM	Non-Cytosolic
457	LG:1034386.1:2001JUN22	38	60	forward 1	TM	Transmembrane
457	LG:1034386.1:2001JUN22	61	101	forward I	TM	Cytosolic
457	LG:1034386.1:2001JUN22	102	124	forward 1	TM	Transmembrane
457	LG:1034386.1:2001JUN22	125	345	forward 1	TM	Non-Cytosolic
457	LG:1034386.1:2001JUN22	1	8	forward 2	TM	Cytosolic
457	LG:1034386.1:2001JUN22	9	31	forward 2	TM	Transmembrane
457	LG:1034386.1:2001JUN22	32	50	forward 2	TM	Non-Cytosolic
457	LG:1034386.1:2001JUN22	51	68	forward 2	TM	Transmembrane
457	LG:1034386.1:2001JUN22	69	112	forward 2	TM	Cytosolic

		TABI	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
457	LG:1034386.1:2001JUN22	113	135	forward 2	TM	Transmembrane
457	LG:1034386.1:2001JUN22	136	192	forward 2	TM	Non-Cytosolic
457	LG:1034386.1:2001JUN22	193	215	forward 2	TM	Transmembrane
457	LG:1034386.1:2001JUN22	216	226	forward 2	TM	Cytosolic
457	LG:1034386.1:2001JUN22	227	249	forward 2	TM	Transmembrane
457	LG:1034386.1:2001JUN22	250	345	forward 2	TM	Non-Cytosolic
457	LG:1034386.1:2001JUN22	1	102	forward 3	TM	Non-Cytosolic
457	LG:1034386.1:2001JUN22	103	125	forward 3	TM	Transmembrane
457	LG:1034386.1:2001JUN22	126	345	forward 3	TM	Cytosolic
458	LG:1045617.36:2001JUN22	1	334	forward 3	TM	Non-Cytosolic
458	LG:1045617.36:2001JUN22	335	357	forward 3	TM	Transmembrane
458	LG:1045617.36:2001JUN22	358	388	forward 3	TM	Cytosolic
459	LG:1063303.1:2001JUN22	1	22	forward 3	TM	Non-Cytosolic
459	LG:1063303.1:2001JUN22	23	45	forward 3	TM	Transmembrane
459	LG:1063303.1:2001JUN22	46	51	forward 3	TM	Cytosolic
459	LG:1063303.1:2001JUN22	52	74	forward 3	TM	Transmembrane
459	LG:1063303.1:2001JUN22	75	432	forward 3	TM	Non-Cytosolic
459	LG:1063303.1:2001JUN22	433	455	forward 3	TM	Transmembrane
459	LG:1063303.1:2001JUN22	456	575	forward 3	TM	Cytosolic
460	LG:1094200.1:2001JUN22	1	316	forward 1	TM	Non-Cytosolic
460	LG:1094200.1:2001JUN22	317	339	forward 1	TM	Transmembrane
460	LG:1094200.1:2001JUN22	340	372	forward 1	TM	Cytosolic
460	LG:1094200.1:2001JUN22	373	395	forward 1	TM	Transmembrane
460	LG:1094200.1:2001JUN22	396	1061	forward 1	TM	Non-Cytosolic
460	LG:1094200.1:2001JUN22	1	314	forward 2	TM	Non-Cytosolic
460	LG:1094200.1:2001JUN22	315	337	forward 2	TM	Transmembrane
460	LG:1094200.1:2001JUN22	338	366	forward 2	TM	Cytosolic
460	LG:1094200.1:2001JUN22	367	389	forward 2	TM	Transmembrane
460 '	LG:1094200.1:2001JUN22 LG:1094200.1:2001JUN22	390 393	392 412	forward 2 forward 2	TM TM	Non-Cytosolic Transmembrane
460 460	LG:1094200.1:2001JUN22	413	678	forward 2	TM	Cytosolic
460 460	LG:1094200.1:2001JUN22	679	701	forward 2	TM	Transmembrane
460	LG:1094200.1:2001JUN22	702	1061	forward 2	TM	Non-Cytosolic
460	LG:1094200.1:2001JUN22	1	380	forward 3	TM	Non-Cytosolic
460	LG:1094200.1:2001JUN22	381	403	forward 3	TM	Transmembrane
460	LG:1094200.1:2001JUN22	404	415	forward 3	TM	Cytosolic
460	LG:1094200.1:2001JUN22	416	438	forward 3	TM	Transmembrane
460	LG:1094200.1:2001JUN22	439	1061	forward 3	TM	Non-Cytosolic
461	LG:1099249.19:2001JUN22	1	417	forward 1	TM	Non-Cytosolic
461	LG:1099249.19:2001JUN22	418	437	forward 1	TM	Transmembrane
461	LG:1099249.19:2001JUN22	438	566	forward 1	TM	Cytosolic
461	LG:1099249.19:2001JUN22	567	589	forward 1	TM	Transmembrane
461	LG:1099249.19:2001JUN22	590	615	forward 1	TM	Non-Cytosolic
461	LG:1099249.19:2001JUN22	1	538	forward 2	TM	Non-Cytosolic
461	LG:1099249.19:2001JUN22	539	557	forward 2	TM	Transmembrane
461	LG:1099249.19:2001JUN22	558	. 569	forward 2	TM	Cytosolic
461	LG:1099249.19:2001JUN22	-570	592	forward 2	TM	Transmembrane
461	LG:1099249.19:2001JUN22	593	614	forward 2	TM	Non-Cytosolic
461	LG:1099249.19:2001JUN22	1	490	forward 3	TM	Non-Cytosolic
461	LG:1099249.19:2001JUN22	491	513	forward 3	TM	Transmembrane
461	LG:1099249.19:2001JUN22	514	583	forward 3	TM	Cytosolic
461	LG:1099249.19:2001JUN22	584	606	forward 3	TM	Transmembrane
461	LG:1099249.19:2001JUN22	607	614	forward 3	TM	Non-Cytosolic
462	LG:110667.1:2001JUN22	1	. 41	forward 2	TM	Non-Cytosolic
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SE	Q D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
	462	LG:110667.1:2001JUN22	42	64	forward 2	TM	Transmembrane
	462	LG:110667.1:2001JUN22	65	70	forward 2	TM	Cytosolic
	462	LG:110667.1:2001JUN22	71	93	forward 2	TM	Transmembrane
	462	LG:110667.1:2001JUN22	94	857	forward 2	TM	Non-Cytosolic
	463	LG:1132386.20:2001JUN22	1	925	forward 1	TM	Non-Cytosolic
	463	LG:1132386.20:2001JUN22	926	948	forward 1	TM	Transmembrane
	463	LG:1132386.20:2001JUN22	949	1027	forward 1	TM	Cytosolic
	463	LG:1132386.20:2001JUN22	1028	1050	forward 1	TM	Transmembrane
	463	LG:1132386.20:2001JUN22	1051	1115	forward 1	TM	Non-Cytosolic
	463	LG:1132386.20:2001JUN22	1116	1138	forward 1	TM	Transmembrane
	463	LG:1132386.20:2001JUN22	1139	1149	forward 1	TM	Cytosolic
	463	LG:1132386.20:2001JUN22	1150	1172	forward 1	TM	Transmembrane
	463	LG:1132386.20:2001JUN22	1173	1199	forward 1	TM	Non-Cytosolic
	463	LG:1132386.20:2001JUN22	. 1	946	forward 2	TM	Non-Cytosolic
	463	LG:1132386.20:2001JUN22	947	969	forward 2	TM	Transmembrane
	463	LG:1132386.20:2001JUN22	970	981	forward 2	TM	Cytosolic
	463	LG:1132386.20:2001JUN22	982	1004	forward 2	TM	Transmembrane
	463	LG:1132386.20:2001JUN22	1005	1023	forward 2	TM	Non-Cytosolic
	463	LG:1132386.20:2001JUN22	1024	1046	forward 2	TM	Transmembrane
	463	LG:1132386.20:2001JUN22	1047	1199	forward 2	TM	Cytosolic
	463	LG:1132386.20:2001JUN22	1	136	forward 3	TM	Cytosolic
	463	LG:1132386.20:2001JUN22	137	159	forward 3	TM	Transmembrane
	463	LG:1132386.20:2001JUN22	160	775	forward 3	TM	Non-Cytosolic
	463	LG:1132386.20:2001JUN22	776	798	forward 3	TM	Transmembrane
	463	LG:1132386.20:2001JUN22	799	926	forward 3	TM	Cytosolic
. •		LG:1132386.20:2001JUN22	927	949	forward 3	TM	Transmembrane
*	463	LG:1132386.20:2001JUN22	950	968	forward 3	TM	Non-Cytosolic
	463	LG:1132386.20:2001JUN22	969	991	forward 3	TM	Transmembrane
	463	LG:1132386.20:2001JUN22	992	997	forward 3	TM	Cytosolic
	463	LG:1132386.20:2001JUN22	998	1020	forward 3	TM	Transmembrane
	463	LG:1132386.20:2001JUN22	1021	1024	forward 3	TM	Non-Cytosolic
	463	LG:1132386.20:2001JUN22	1025	1044	forward 3	TM	Transmembrane
	463	LG:1132386.20:2001JUN22	1045	1140	forward 3	TM	Cytosolic
	463	LG:1132386.20:2001JUN22	1141	1163	forward 3	TM	Transmembrane
	463	LG:1132386.20:2001JUN22	1164	1198	forward 3	TM	Non-Cytosolic
	464	LG:116015.2:2001JUN22	1	443	forward 1	TM	Non-Cytosolic
	464	LG:116015.2:2001JUN22	444	466	forward 1	TM	Transmembrane
	464	LG:116015.2:2001JUN22	467	542	forward 1	TM	Cytosolic
	464	LG:116015.2:2001JUN22	543	560	forward 1	TM	Transmembrane
	464	LG:116015.2:2001JUN22	561	662	forward 1	TM	Non-Cytosolic
	464	LG:116015.2:2001JUN22	663	685	forward 1	TM	Transmembrane
	464	LG:116015.2:2001JUN22	686	697	forward 1	TM	Cytosolic
	464	LG:116015.2:2001JUN22	698	720	forward 1	TM	Transmembrane
	464	LG:116015.2:2001JUN22	721	734	forward 1	· TM	Non-Cytosolic
	464	LG:116015.2:2001JUN22	735	757	forward 1	TM	Transmembrane
	464	LG:116015.2:2001JUN22	758	761	forward 1	TM	Cytosolic
	464	LG:116015.2:2001JUN22	762	779	forward 1	TM	Transmembrane
	464	LG:116015.2:2001JUN22	780	793	forward 1	TM	Non-Cytosolic
	464	LG:116015.2:2001JUN22	794	816	forward 1	TM	Transmembrane
	464	LG:116015.2:2001JUN22	817	945	forward 1	TM	Cytosolic
	464	LG:116015.2:2001JUN22	946	965	forward 1	TM	Transmembrane
	464	LG:116015.2:2001JUN22	966	1062	forward 1	TM	Non-Cytosolic
	464	LG:116015.2:2001JUN22	1	446	forward 2	TM	Non-Cytosolic
	464	LG:116015.2:2001JUN22	447	469	forward 2	TM	Transmembrane
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			TABI	Æ 2			
SEQ D NO:	Template ID		Start	Stop	Frame	Domain Type	Topology
464	LG:116015.2:2001JUN22		470	489	forward 2	TM	Cytosolic
464	LG:116015.2:2001JUN22		490	512	forward 2	TM	Transmembrane
464	LG:116015.2:2001JUN22		513	539	forward 2	TM	Non-Cytosolic
464	LG:116015.2:2001JUN22		540	562	forward 2	TM	Transmembrane
464	LG:116015.2:2001JUN22		563	760	forward 2	TM	Cytosolic
464	LG:116015.2:2001JUN22		761	783	forward 2	TM	Transmembrane
464	LG:116015.2:2001JUN22		784	1062	forward 2	TM	Non-Cytosolic
464	LG:116015.2:2001JUN22		1	442	forward 3	TM	Non-Cytosolic
464	LG:116015.2:2001JUN22		443	465	forward 3	TM	Transmembrane
464	LG:116015.2:2001JUN22		466	543	forward 3	TM	Cytosolic
464	LG:116015.2:2001JUN22		544	561	forward 3	TM	Transmembrane
464	LG:116015.2:2001JUN22		562	1062	forward 3	TM	Non-Cytosolic
465	LG:1173104.15:2001JUN22		1	295	forward 1	TM	Non-Cytosolic
465	LG:1173104.15:2001JUN22		296	318	forward 1	TM	Transmembrane
465	LG:1173104.15:2001JUN22		319	324	forward 1	TM	Cytosolic
465	LG:1173104.15:2001JUN22		325	347	forward 1	TM	Transmembrane
465	LG:1173104.15:2001JUN22		348	516	forward 1	TM	Non-Cytosolic
465	LG:1173104.15:2001JUN22		1	296	forward 2	TM	Cytosolic
465	LG:1173104.15:2001JUN22		297	319	forward 2	TM	Transmembrane
465	LG:1173104.15:2001JUN22	*	320	328	forward 2	TM	Non-Cytosolic
465	LG:1173104.15:2001JUN22		329	348	forward 2	TM	Transmembrane
465	LG:1173104.15:2001JUN22		349	516	forward 2	TM	Cytosolic
465	LG:1173104.15:2001JUN22		1	209	forward 3	TM	Cytosolic
465	LG:1173104.15:2001JUN22		210	232	forward 3	TM	Transmembrane
465	LG:1173104.15:2001JUN22		.233	305	forward 3	TM	Non-Cytosolic
465	LG:1173104.15:2001JUN22	Ę	306	323	forward 3	TM	Transmembrane
465	LG:1173104.15:2001JUN22		324	329	forward 3	TM	Cytosolic
465	LG:1173104.15:2001JUN22		330	352	forward 3	TM	Transmembrane
465	LG:1173104.15:2001JUN22	٠.	353	516	forward 3	TM	Non-Cytosolic
466	LG:1285109.14:2001JUN22		1	4	forward 1	TM	Cytosolic
466	LG:1285109.14:2001JUN22		5	27	forward 1	TM	Transmembrane
466	LG:1285109.14:2001JUN22		28	483	forward 1	TM	Non-Cytosolic
466	LG:1285109.14:2001JUN22		1	6	forward 3	TM	Cytosolic
466	LG:1285109.14:2001JUN22		7	29	forward 3	TM	Transmembrane
466	LG:1285109.14:2001JUN22		30	61	forward 3	TM	Non-Cytosolic
466	LG:1285109.14:2001JUN22		62	84	forward 3	TM	Transmembrane
466	LG:1285109.14:2001JUN22		85	427	forward 3	TM	Cytosolic
466	LG:1285109.14:2001JUN22		428	450	forward 3	TM	Transmembrane
466	LG:1285109.14:2001JUN22		451	459	forward 3	TM	Non-Cytosolic
466	LG:1285109.14:2001JUN22		460	479	forward 3	TM	Transmembrane
466 ·	LG:1285109.14:2001JUN22		480	483	forward 3	TM	Cytosolic
467	LG:131477.11:2001JUN22		1	1781	forward 1	TM	Non-Cytosolic
467	LG:131477.11:2001JUN22		1782	1804	forward 1	TM	Transmembrane
467	LG:131477.11:2001JUN22		1805	1830	forward 1	TM	Cytosolic
467	LG:131477.11:2001JUN22		1831	1849	forward 1	TM	Transmembrane
467	LG:131477.11:2001JUN22		1850	1858	forward 1	TM	Non-Cytosolic
467	LG:131477.11:2001JUN22		1859	1881	forward 1	TM	Transmembrane
467	LG:131477.11:2001JUN22		1882	1892	forward 1	TM	Cytosolic
467	LG:131477.11:2001JUN22		1893	1915	forward 1	TM	Transmembrane
467	LG:131477.11:2001JUN22		1916	1916	forward 1	TM	Non-Cytosolic
468	LG:1333618.1:2001JUN22		1	15	forward 1	TM	Cytosolic
468	LG:1333618.1:2001JUN22		16	35	forward 1	TM	Transmembrane
468	LG:1333618.1:2001JUN22		36	200	forward 1	TM	Non-Cytosolic
468	LG:1333618.1:2001JUN22		201	223	forward 1	TM	Transmembrane

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		TABI	.E 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
468	LG:1333618.1:2001JUN22	224	338	forward 1	TM	Cytosolic
468	LG:1333618.1:2001JUN22	339	357	forward 1	TM	Transmembrane
468	LG:1333618.1:2001JUN22	358	360	forward 1	TM	Non-Cytosolic
468	LG:1333618.1:2001JUN22	1	19	forward 2	TM	Cytosolic
468	LG:1333618.1:2001JUN22	20	39	forward 2	· TM	Transmembrane
468	LG:1333618.1:2001JUN22	40	270	forward 2	TM	Non-Cytosolic
468	LG:1333618.1:2001JUN22	271	293	forward 2	TM	Transmembrane
468	LG:1333618.1:2001JUN22	294	305	forward 2	TM	Cytosolic
468	LG:1333618.1:2001JUN22	306	328	forward 2	TM	Transmembrane
468	LG:1333618.1:2001JUN22	329	337	forward 2	TM	Non-Cytosolic
468	LG:1333618.1:2001JUN22	338	357	forward 2	TM	Transmembrane
468	LG:1333618.1:2001JUN22	358	360	forward 2	TM	Cytosolic
468	LG:1333618.1:2001JUN22	1	19	forward 3	TM	Non-Cytosolic
468	LG:1333618.1:2001JUN22	20	42	forward 3	TM	Transmembrane
468	LG:1333618.1:2001JUN22	43	196	forward 3	TM	Cytosolic
468	LG:1333618.1:2001JUN22	197	216	forward 3	TM	Transmembrane
468	LG:1333618.1:2001JUN22	217	277	forward 3	TM	Non-Cytosolic
468	LG:1333618.1:2001JUN22	278	300	forward 3	TM	Transmembrane
468	LG:1333618.1:2001JUN22	301	359	forward 3	TM '	Cytosolic
469	LG:1347760.16:2001JUN22	1	9	forward 2	TM	Non-Cytosolic
469	LG:1347760.16:2001JUN22	10	32	forward 2	TM	Transmembrane
469	LG:1347760.16:2001JUN22	33	44	forward 2	TM	Cytosolic
469	LG:1347760.16:2001JUN22	45	67	forward 2	TM	Transmembrane
469	LG:1347760.16:2001JUN22	68	823	forward 2	TM	Non-Cytosolic
470	LG:1383039.369:2001JUN22	1.	165	forward 1	. TM	Cytosolic
470	LG:1383039.369:2001JUN22	166	188	forward 1	TM	Transmembrane
470	LG:1383039.369:2001JUN22	189	202	forward 1	TM	Non-Cytosolic
470	LG:1383039.369:2001JUN22	203	225	forward 1	TM	Transmembrane
470	LG:1383039.369:2001JUN22	226	383	forward 1	TM	Cytosolic
471	LG:1383313.3:2001JUN22	1	1068	forward 2	TM	Non-Cytosolic
471	LG:1383313.3:2001JUN22	1069	1091	forward 2	TM	Transmembrane
471	LG:1383313.3:2001JUN22	1092	1116	forward 2	TM	Cytosolic
472	LG:1384075.8:2001JUN22	1	59	forward 2	TM	Non-Cytosolic
472	LG:1384075.8:2001JUN22	60	82	forward 2	TM	Transmembrane
472	LG:1384075.8:2001JUN22	83	101	forward 2	TM	Cytosolic
472	LG:1384075.8:2001JUN22	102	124	forward 2	TM	Transmembrane
472	LG:1384075.8:2001JUN22	125	127	forward 2	TM	Non-Cytosolic
472	LG:1384075.8:2001JUN22	128	150	forward 2	TM	Transmembrane
472	LG:1384075.8:2001JUN22	151	158	forward 2	TM	Cytosolic
472	LG:1384075.8:2001JUN22	159	178	forward 2	TM	Transmembrane
472	LG:1384075.8:2001JUN22	179	192	forward 2	TM	Non-Cytosolic
472	LG:1384075.8:2001JUN22	193	215	forward 2	TM	Transmembrane
472	LG:1384075.8:2001JUN22	216	221	forward 2	TM	Cytosolic
472	LG:1384075.8:2001JUN22	222	244	forward 2	TM	Transmembrane
472	LG:1384075.8:2001JUN22	245	258	forward 2	TM	Non-Cytosolic
472	LG:1384075.8:2001JUN22	259	281	forward 2	TM	Transmembrane
472	LG:1384075.8:2001JUN22	282	293	forward 2	TM	Cytosolic
472	LG:1384075.8:2001JUN22	294	316	forward 2	TM	Transmembrane
472	LG:1384075.8:2001JUN22	317	773	forward 2	TM	Non-Cytosolic
472	LG:1384075.8:2001JUN22	774	796	forward 2	TM	Transmembrane
472	LG:1384075.8:2001JUN22	797	813	forward 2	TM	Cytosolic
472	LG:1384075.8:2001JUN22	1	773	forward 3	TM	Non-Cytosolic
472	LG:1384075.8:2001JUN22	774	796	forward 3	TM	Transmembrane
472	LG:1384075.8:2001JUN22	79 <b>7</b>	812	forward 3	TM	Cytosolic
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SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
473	LG:1384155.1:2001JUN22	1	12	forward 2	TM	Cytosolic
473	LG:1384155.1:2001JUN22	13	35	forward 2	TM	Transmembrane
473	LG:1384155.1:2001JUN22	36	461	forward 2	TM	Non-Cytosolic
474	LG:1385280.12:2001JUN22	1	9	forward 3	TM	Non-Cytosolic
474	LG:1385280.12:2001JUN22	10	32	forward 3	TM	Transmembrane
474	LG:1385280.12:2001JUN22	33	278	forward 3	TM	Cytosolic
475	LG:1390535.25:2001JUN22	1	42	forward 3	TM	Cytosolic
475	LG:1390535.25:2001JUN22	43	60	forward 3	TM	Transmembrane
475	LG:1390535.25:2001JUN22	61	89	forward 3	TM	Non-Cytosolic
475	LG:1390535.25:2001JUN22	90	112	forward 3	TM	Transmembrane
475	LG:1390535.25:2001JUN22	113	151	forward 3	TM	Cytosolic
476	LG:1397047.1:2001JUN22	1	75	forward 3	TM	Cytosolic
476	LG:1397047.1:2001JUN22	76	98	forward 3	TM	Transmembrane
476	LG:1397047.1:2001JUN22	99	101	forward 3	TM	Non-Cytosolic
476	LG:1397047.1:2001JUN22	102	124	forward 3	TM	Transmembrane
476	LG:1397047.1:2001JUN22	125	248	forward 3	TM	Cytosolic
476	LG:1397047.1:2001JUN22	249	266	forward 3	TM	Transmembrane
476	LG:1397047.1:2001JUN22	267	507	forward 3	TM	Non-Cytosolic
	LG:1398646.15:2001JUN22	1	63	forward 1	TM	Non-Cytosolic
477		64		forward 1		
477	LG:1398646.15:2001JUN22		86		TM	Transmembrane
477	LG:1398646.15:2001JUN22	87	287	forward 1	TM	Cytosolic
477	LG:1398646.15:2001JUN22	288	310	forward 1	TM	Transmembrane
477	LG:1398646.15:2001JUN22	311	329	forward 1	TM	Non-Cytosolic
477	LG:1398646.15:2001JUN22		352	forward 1	TM	Transmembrane
477	LG:1398646.15:2001JUN22	353	372	forward 1	TM	Cytosolic
477	LG:1398646.15:2001JUN22	373	395	forward 1	TM	Transmembrane
477	LG:1398646.15:2001JUN22	396 .		forward 1	TM	Non-Cytosolic
477	LG:1398646.15:2001JUN22	1	67	forward 2	TM	Cytosolic
477	LG:1398646.15:2001JUN22	- 68	90 -	forward 2	TM	Transmembrane
477	LG:1398646.15:2001JUN22	91	334	forward 2	TM	Non-Cytosolic
477	LG:1398646.15:2001JUN22	335	357	forward 2	TM	Transmembrane
477	LG:1398646.15:2001JUN22	358	500	forward 2	TM	Cytosolic
477	LG:1398646.15:2001JUN22	501	520	forward 2	TM	Transmembrane
477	LG:1398646.15:2001JUN22	521	601	forward 2	TM	Non-Cytosolic
477	LG:1398646.15:2001JUN22	602	624	forward 2	TM	Transmembrane
477	LG:1398646.15:2001JUN22	625	748	forward 2	TM	Cytosolic
477	LG:1398646.15:2001JUN22	1	290	forward 3	TM	Non-Cytosolic
477	LG:1398646.15:2001JUN22	291	313	forward 3	TM	Transmembrane
477	LG:1398646.15:2001JUN22	314	333	forward 3	TM	Cytosolic
477	LG:1398646.15:2001JUN22	334	356	forward 3	TM	Transmembrane
477	LG:1398646.15:2001JUN22	357	370	forward 3	TM	Non-Cytosolic
477	LG:1398646.15:2001JUN22	371	393	forward 3	TM	Transmembrane
477	LG:1398646.15:2001JUN22	394	499	forward 3	TM	Cytosolic
477	LG:1398646.15:2001JUN22	500	522	forward 3	TM	Transmembrane
477	LG:1398646.15:2001JUN22	523	536	forward 3	TM	Non-Cytosolic
477	LG:1398646.15:2001JUN22	537	559	forward 3	TM	Transmembrane
477	LG:1398646.15:2001JUN22	560	651	forward 3	TM	Cytosolic
477	LG:1398646.15:2001JUN22	652	674	forward 3	TM	Transmembrane
477	LG:1398646.15:2001JUN22	675	677	forward 3	TM	Non-Cytosolic
477	LG:1398646.15:2001JUN22	678	697	forward 3	TM	Transmembrane
477	LG:1398646.15:2001JUN22	698	748	forward 3	TM	Cytosolic
478	LG:1446193.10:2001JUN22	1	941	forward 1	TM	Non-Cytosolic
478	LG:1446193.10:2001JUN22	942	961	forward 1	TM	Transmembrane
478	LG:1446193.10:2001JUN22	962	1036	forward 1	TM	Cytosolic
		219	+			

### TABLE 2 Domain Type Start Stop Topology SEO D NO: Frame Template ID Transmembrane 478 LG:1446193.10:2001JUN22 1037 1059 forward 1 TM 1060 1073 TM Non-Cytosolic 478 LG:1446193.10:2001JUN22 forward 1 LG:1446193.10:2001JUN22 1074 1096 forward 1 TM Transmembrane 478 1097 1171 forward 1 TM Cytosolic 478 LG:1446193.10:2001JUN22 478 1172 1194 forward 1 TM Transmembrane LG:1446193.10:2001JUN22 478 LG:1446193.10:2001JUN22 1195 1371 forward 1 TM Non-Cytosolic 1034 forward 2 TM Non-Cytosolic 478 LG:1446193.10:2001JUN22 1 1035 1057 forward 2 TM Transmembrane 478 LG:1446193.10:2001JUN22 1058 1069 forward 2 TM Cytosolic 478 LG:1446193.10:2001JUN22 1070 1087 forward 2 TM Transmembrane 478 LG:1446193.10:2001JUN22 LG:1446193.10:2001JUN22 1088 1371 forward 2 TM Non-Cytosolic 478 3161 forward 1 TM Non-Cytosolic LG:1446405.14:2001JUN22 1 479 3162 3184 forward 1 TM Transmembrane 479 LG:1446405.14:2001JUN22 LG:1446405.14:2001JUN22 3185 3232 forward 1 TM Cytosolic 479 479 LG:1446405.14:2001JUN22 3233 3255 forward 1 TM Transmembrane 479 LG:1446405.14:2001JUN22 3256 3290 forward 1 TM Non-Cytosolic 3313 Transmembrane LG:1446405.14:2001JUN22 3291 forward 1 TM 479 TM Cytosolic 479 LG:1446405.14:2001JUN22 3314 3410 forward 1 Transmembrane 479 LG:1446405.14:2001JUN22 3411 3433 forward 1 TM 3434 3447 forward 1 TM Non-Cytosolic 479 LG:1446405.14:2001JUN22 3409 TM Non-Cytosolic 479 LG:1446405.14:2001JUN22 1 forward 2 3410 3432 forward 2 TM Transmembrane 479 LG:1446405.14:2001JUN22 TM Cytosolic 3447 forward 2 479 LG:1446405.14:2001JUN22 3433 Non-Cytosolic ·3127 forward 3. TM 479 LG:1446405.14:2001JUN22 . 1 Transmembrane 479 LG:1446405.14:2001JUN22 3128 3150 forward 3 TM 3151 3162 forward 3 TM Cytosolic 479 LG:1446405.14:2001JUN22 TM Transmembrane 479 LG:1446405.14:2001JUN22 3163 - 3185 forward 3 3186 3230 forward 3 TM Non-Cytosolic 479 LG:1446405.14:2001JUN22 3231 3264 forward 3° TM Transmembrane 479 LG:1446405.14:2001JUN22 3265 3283 forward 3 TM Cytosolic 479 LG:1446405.14:2001JUN22 479 LG:1446405.14:2001JUN22 3284 3306 forward 3 TM Transmembrane 479 LG:1446405.14:2001JUN22 3307 3328 forward 3 TM Non-Cytosolic 3329 3351 forward 3 TM Transmembrane 479 LG:1446405.14:2001JUN22 479 LG:1446405.14:2001JUN22 3352 3394 forward 3 TM Cytosolic 3417 forward 3 TM Transmembrane 479 LG:1446405.14:2001JUN22 3395 Non-Cytosolic 3426 forward 3 TM 479 LG:1446405.14:2001JUN22 3418 Transmembrane 479 LG:1446405.14:2001JUN22 3427 3444 forward 3 TM Cytosolic 479 LG:1446405.14:2001JUN22 3445 3446 forward 3 TM TM Cytosolic 480 LG:1448148.1:2001JUN22 1 139 forward 2 140 162 forward 2 TM Transmembrane 480 LG:1448148.1:2001JUN22 Non-Cytosolic 163 538 forward 2 TM LG:1448148.1:2001JUN22 480 Transmembrane 539 TM480 LG:1448148.1:2001JUN22 561 forward 2

480 LG:1448148.1:2001JUN22 562 577 forward 2 TM Cytosolic TM Cytosolic 481 LG:1452619.13:2001JUN22 1 12 forward 2 13 35 forward 2 TM Transmembrane 481 LG:1452619.13:2001JUN22 76 forward 2 TM Non-Cytosolic 481 LG:1452619.13:2001JUN22 36 77 TM Transmembrane 481 LG:1452619.13:2001JUN22 99 forward 2 LG:1452619.13:2001JUN22 100 105 forward 2 TM Cytosolic 481 481 LG:1452619.13:2001JUN22 106 128 forward 2 TM Transmembrane Non-Cytosolic 481 LG:1452619.13:2001JUN22 129 363 forward 2 TM Cytosolic 482 LG:1452783.22:2001JUN22 85 forward 3 TM 1 Transmembrane 482 LG:1452783.22:2001JUN22 86 108 forward 3 TM Non-Cytosolic 482 LG:1452783.22:2001JUN22 109 2326 forward 3 TM TM Cytosolic 483 LG:1453417.5:2001JUN22 18 forward 1 220

		TABI	.E 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
483	LG:1453417.5:2001JUN22	19	41	forward 1	TM	Transmembrane
483	LG:1453417.5:2001JUN22	42	1206	forward 1	TM	Non-Cytosolic
483	LG:1453417.5:2001JUN22	1	88	forward 3	TM	Non-Cytosolic
483	LG:1453417.5:2001JUN22	89	111	forward 3	TM	Transmembrane
483	LG:1453417.5:2001JUN22	112	117	forward 3	TM	Cytosolic
483	LG:1453417.5:2001JUN22	118	140	forward 3	TM	Transmembrane
483	LG:1453417.5:2001JUN22	141	1206	forward 3	TM	Non-Cytosolic
484	LG:1455222.23:2001JUN22	1	207	forward 2	TM	Cytosolic
484	LG:1455222.23:2001JUN22	208	230	forward 2	TM	Transmembrane
484	LG:1455222.23:2001JUN22	231	596	forward 2	TM	Non-Cytosolic
485	LG:149121.8:2001JUN22	1	142	forward 1	TM	Non-Cytosolic
485	LG:149121.8:2001JUN22	143	160	forward 1	TM	Transmembrane
485	LG:149121.8:2001JUN22	161	179	forward 1	TM	Cytosolic
485	LG:149121.8:2001JUN22	180	202	forward 1	TM	Transmembrane
485	LG:149121.8:2001JUN22	203	205	forward 1	TM	Non-Cytosolic
485	LG:149121.8:2001JUN22	206	228	forward 1	TM	Transmembrane
485	LG:149121.8:2001JUN22	229	240	forward 1	TM	Cytosolic
485	LG:149121.8:2001JUN22	241	263	forward 1	TM	Transmembrane
485	LG:149121.8:2001JUN22	264	293	forward 1	TM	Non-Cytosolic
485	LG:149121.8:2001JUN22	294	311	forward 1	TM	Transmembrane
485	LG:149121.8:2001JUN22	312	339	forward 1	TM	Cytosolic
485	LG:149121.8:2001JUN22	340	362	forward 1	TM	Transmembrane
485	LG:149121.8:2001JUN22	363	463	forward 1	TM	Non-Cytosolic
485	LG:149121.8:2001JUN22	464	486	forward 1	TM	Transmembrane
485	LG:149121.8:2001JUN22	487	559	forward 1	TM	Cytosolic
485	LG:149121.8:2001JUN22	560		forward 1	TM	Transmembrane
485	LG:149121.8:2001JUN22	578	586	forward 1	TM ·	Non-Cytosolic
485	LG:149121.8:2001JUN22	587		forward 1	TM ·	Transmembrane
485	LG:149121.8:2001JUN22	610	831	forward 1	TM .	Cytosolic
485	LG:149121.8:2001JUN22	832	854	forward 1	TM	Transmembrane
485	LG:149121.8:2001JUN22	855	868	forward 1	TM	Non-Cytosolic
485	LG:149121.8:2001JUN22	869	891	forward 1	TM	Transmembrane
485	LG:149121.8:2001JUN22	892	978	forward 1	TM	Cytosolic
485	LG:149121.8:2001JUN22	979	998	forward 1	TM	Transmembrane
485	LG:149121.8:2001JUN22	999	1129	forward 1	TM	Non-Cytosolic
485	LG:149121.8:2001JUN22	1130	1152		TM	Transmembrane
485	LG:149121.8:2001JUN22	1153	1300		TM	Cytosolic
485	LG:149121.8:2001JUN22	1301	1323		TM	Transmembrane Non-Cytosolic
485	LG:149121.8:2001JUN22	.1324	1332		TM	Cytosolic
485	LG:149121.8:2001JUN22	1	142	forward 2	TM	Transmembrane
485	LG:149121.8:2001JUN22	143	165	forward 2	TM	Non-Cytosolic
485	LG:149121.8:2001JUN22	166	197	forward 2	TM	Transmembrane
485	LG:149121.8:2001JUN22	198	220	forward 2	TM TM	Cytosolic
485	LG:149121.8:2001JUN22	221	466	forward 2		Transmembrane
485	LG:149121.8:2001JUN22	467	489	forward 2 forward 2	TM TM	Non-Cytosolic
485	LG:149121.8:2001JUN22	490	627		-	Transmembrane
485	LG:149121.8:2001JUN22	628	650	forward 2 forward 2	TM TM	Cytosolic
485	LG:149121.8:2001JUN22	651	656	forward 2		Transmembrane
485	LG:149121.8:2001JUN22	657	679		TM	Non-Cytosolic
485	LG:149121.8:2001JUN22	680	1304		TM	Transmembrane
485	LG:149121.8:2001JUN22	1305	1327		TM TM	Cytosolic
485	LG:149121.8:2001JUN22	1328	1332	forward 2	TM	Non-Cytosolic
485	LG:149121.8:2001JUN22	1 900	899 922	forward 3	TM	Transmembrane
485	LG:149121.8:2001JUN22	900		ioi watu 3	1 141	1141.511.0111014110

SEQ D NO:	TABLE 2						
Age	SEO D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
485         LG:149121.8:2001JUN22         974         996         forward 3         TM         Transmembrane           485         LG:149121.8:2001JUN22         1001         1023         forward 3         TM         Non-Cytosolic           485         LG:149121.8:2001JUN22         1024         1046         forward 3         TM         Transmembrane           485         LG:149121.8:2001JUN22         1067         1331         forward 3         TM         Transmembrane           486         LG:1500175.18:2001JUN22         1534         forward 1         TM         Non-Cytosolic           486         LG:1500175.18:2001JUN22         575         599         forward 1         TM         Transmembrane           486         LG:1500175.18:2001JUN22         577         599         forward 1         TM         Transmembrane           486         LG:1500175.18:2001JUN22         609         631         forward 1         TM         Transmembrane           486         LG:1500175.18:2001JUN22         609         631         forward 1         TM         Transmembrane           486         LG:1500175.18:2001JUN22         602         642         forward 1         TM         Transmembrane           486         LG:1500175.18:	-		923	973	forward 3	TM	Cytosolic
485         LG:149121.8:2001JUN22         997         1000         forward 3         TM         Non-Cytosolic           485         LG:149121.8:2001JUN22         1004         1043         forward 3         TM         Transmembrane           485         LG:149121.8:2001JUN22         1044         1066         forward 3         TM         Transmembrane           485         LG:1500175.18:2001JUN22         1534         forward 1         TM         Non-Cytosolic           486         LG:1500175.18:2001JUN22         558         576         forward 1         TM         Non-Cytosolic           486         LG:1500175.18:2001JUN22         558         576         forward 1         TM         Transmembrane           486         LG:1500175.18:2001JUN22         558         576         forward 1         TM         Non-Cytosolic           486         LG:1500175.18:2001JUN22         600         608         forward 1         TM         Non-Cytosolic           486         LG:1500175.18:2001JUN22         176         forward 1         TM         Non-Cytosolic           486         LG:1500175.18:2001JUN22         177         599         forward 2         TM         Non-Cytosolic           486         LG:1500175.18:2001JUN22			974	996	forward 3	TM	Transmembrane
485			997	1000	forward 3	TM	Non-Cytosolic
485		LG:149121.8:2001JUN22	1001	1023	forward 3	TM	Transmembrane
485         LG:149121.8:2001JUN22         1044         1066         forward 3         TM         Transmembrane           486         LG:1500175.18:2001JUN22         1         534         forward 1         TM         Non-Cytosolic           486         LG:1500175.18:2001JUN22         535         557         forward 1         TM         Transmembrane           486         LG:1500175.18:2001JUN22         558         576         forward 1         TM         Cytosolic           486         LG:1500175.18:2001JUN22         600         608         forward 1         TM         Cytosolic           486         LG:1500175.18:2001JUN22         600         631         forward 1         TM         Cytosolic           486         LG:1500175.18:2001JUN22         600         631         forward 1         TM         Non-Cytosolic           486         LG:1500175.18:2001JUN22         632         642         forward 2         TM         Non-Cytosolic           486         LG:1500175.18:2001JUN22         577         599         forward 2         TM         Transmembrane           486         LG:1500175.18:2001JUN22         610         601         forward 3         TM         Transmembrane           487         LG:150			1024	1043	forward 3	TM	Cytosolic
485			1044	1066	forward 3	TM	Transmembrane
486			1067	1331	forward 3	TM	Non-Cytosolic
486			1	534	forward 1	TM	Non-Cytosolic
486			535	557	forward 1	TM	Transmembrane
A86			558	576	forward 1	TM	Cytosolic
486			577	599	forward 1	TM	Transmembrane
486			600	608	forward 1	TM	Non-Cytosolic
A86					forward 1	TM	•
486				642	forward 1	TM	Cytosolic
A86			1	576	forward 2	TM	Non-Cytosolic
486   LG:1500175.18:2001JUN22   600   611   forward 2   TM   Transmembrane   486   LG:1500175.18:2001JUN22   612   631   forward 2   TM   Non-Cytosolic   486   LG:1500175.18:2001JUN22   1   540   forward 3   TM   Non-Cytosolic   486   LG:1500175.18:2001JUN22   541   563   forward 3   TM   Transmembrane   486   LG:1500175.18:2001JUN22   542   569   forward 3   TM   Transmembrane   486   LG:1500175.18:2001JUN22   570   592   forward 3   TM   Transmembrane   486   LG:1500175.18:2001JUN22   570   592   forward 3   TM   Transmembrane   486   LG:1500175.18:2001JUN22   570   592   forward 3   TM   Non-Cytosolic   487   LG:1500434.6:2001JUN22   1   431   forward 1   TM   Non-Cytosolic   487   LG:1500434.6:2001JUN22   455   515   forward 1   TM   Transmembrane   487   LG:1500434.6:2001JUN22   455   515   forward 1   TM   Transmembrane   487   LG:1500434.6:2001JUN22   536   549   forward 1   TM   Transmembrane   487   LG:1500434.6:2001JUN22   550   572   forward 1   TM   Transmembrane   487   LG:1500434.6:2001JUN22   550   572   forward 1   TM   Transmembrane   487   LG:1500434.6:2001JUN22   573   576   forward 1   TM   Transmembrane   487   LG:1500434.6:2001JUN22   577   599   forward 1   TM   Transmembrane   487   LG:1500434.6:2001JUN22   600   626   forward 1   TM   Transmembrane   487   LG:1500434.6:2001JUN22   600   626   forward 1   TM   Transmembrane   487   LG:1500434.6:2001JUN22   600   626   forward 1   TM   Transmembrane   487   LG:1500434.6:2001JUN22   670   693   forward 1   TM   Transmembrane   487   LG:1500434.6:2001JUN22   670   678   forward 1   TM   Transmembrane   487   LG:1500434.6:2001JUN22   717   730   forward 1   TM   Transmembrane   487   LG:1500434.6:2001JUN22   717   730   forward 1   TM   Transmembrane   487   LG:1500434.6:2001JUN22   717   730   forward 1   TM   Transmembrane   487   LG:1500434.6:2001JUN22   718   718   forward 1   TM   Transmembrane   487   LG:1500434.6:2001JUN22   718   718   forward 1   TM   Transmembrane   487   LG:1500434.6:2001JUN22   718   718   forward 1   TM   Tran			577		forward 2	TM	Transmembrane
486         LG:1500175.18:2001JUN22         612         631         forward 2         TM         Transmembrane           486         LG:1500175.18:2001JUN22         1         540         forward 3         TM         Non-Cytosolic           486         LG:1500175.18:2001JUN22         541         563         forward 3         TM         Non-Cytosolic           486         LG:1500175.18:2001JUN22         564         569         forward 3         TM         Transmembrane           486         LG:1500175.18:2001JUN22         593         641         forward 3         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         356         592         forward 3         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         431         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         455         515         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         516         535         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         536         549         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22 </td <td></td> <td></td> <td></td> <td></td> <td>forward 2</td> <td>TM</td> <td>Cytosolic</td>					forward 2	TM	Cytosolic
486   LG:1500175.18:2001JUN22					forward 2	TM	Transmembrane
486         LG:IS00175.18:2001JUN22         1         540         forward 3         TM         Non-Cytosolic           486         LG:IS00175.18:2001JUN22         541         563         forward 3         TM         Transmembrane           486         LG:IS00175.18:2001JUN22         570         592         forward 3         TM         Cytosolic           487         LG:IS00434.6:2001JUN22         593         641         forward 3         TM         Non-Cytosolic           487         LG:IS00434.6:2001JUN22         42         454         forward 1         TM         Non-Cytosolic           487         LG:IS00434.6:2001JUN22         455         515         forward 1         TM         Transmembrane           487         LG:IS00434.6:2001JUN22         455         515         forward 1         TM         Transmembrane           487         LG:IS00434.6:2001JUN22         536         549         forward 1         TM         Transmembrane           487         LG:IS00434.6:2001JUN22         550         572         forward 1         TM         Transmembrane           487         LG:IS00434.6:2001JUN22         573         576         forward 1         TM         Transmembrane           487         LG:IS0					forward 2	TM	Non-Cytosolic
486         LG:1500175.18:2001JUN22         541         563         forward 3         TM         Transmembrane           486         LG:1500175.18:2001JUN22         564         569         forward 3         TM         Cytosolic           486         LG:1500175.18:2001JUN22         593         641         forward 3         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1         431         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         432         454         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         455         515         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         536         549         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         536         549         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         530         572         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         573         576         forward 1         TM         Transmembrane           487         LG:150043				540	forward 3	TM	_
486         LG:1500175.18:2001JUN22         564         569         forward 3         TM         Cytosolic           486         LG:1500175.18:2001JUN22         570         592         forward 3         TM         Transmembrane           486         LG:1500175.18:2001JUN22         1         431         forward 3         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         432         454         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         455         515         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         536         549         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         550         572         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         550         572         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         577         599         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         607         649         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:					forward 3	TM	
486         LG:1500175.18:2001JUN22         570         592         forward 3         TM         Transmembrane           486         LG:1500175.18:2001JUN22         1         431         forward 3         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1         431         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         455         515         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         516         535         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         550         572         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         550         572         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         577         599         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         627         649         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         627         649         forward 1         TM         Transmembrane           487         LG:15004					forward 3	TM	Cytosolic
A86					forward 3	TM	-
487						TM	Non-Cytosolic
487         LG:1500434.6:2001JUN22         432         454         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         455         515         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         536         549         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         550         572         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         573         576         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         577         599         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         600         626         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         627         649         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         694         716         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         717         730         forward 1         TM         Transmembrane           487         LG:150				431	forward 1	TM	
487         LG:1500434.6:2001JUN22         455         515         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         516         535         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         536         549         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         573         576         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         577         599         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         600         626         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         650         693         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         650         693         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         717         730         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         717         730         forward 1         TM         Transmembrane           487         LG:1500434				454		TM	-
487         LG:1500434.6:2001JUN22         516         535         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         536         549         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         550         572         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         573         576         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         600         626         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         627         649         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         650         693         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         694         716         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         717         730         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         754         759         forward 1         TM         Transmembrane           487         LG:1500434			455			TM	Cytosolic
487         LG:I500434.6:2001JUN22         536         549         forward 1         TM         Non-Cytosolic           487         LG:I500434.6:2001JUN22         550         572         forward 1         TM         Transmembrane           487         LG:I500434.6:2001JUN22         573         576         forward 1         TM         Cytosolic           487         LG:I500434.6:2001JUN22         600         626         forward 1         TM         Non-Cytosolic           487         LG:I500434.6:2001JUN22         600         626         forward 1         TM         Non-Cytosolic           487         LG:I500434.6:2001JUN22         650         693         forward 1         TM         Cytosolic           487         LG:I500434.6:2001JUN22         650         693         forward 1         TM         Cytosolic           487         LG:I500434.6:2001JUN22         717         730         forward 1         TM         Non-Cytosolic           487         LG:I500434.6:2001JUN22         731         753         forward 1         TM         Transmembrane           487         LG:I500434.6:2001JUN22         754         759         forward 1         TM         Non-Cytosolic           487         LG:I500434.6:2		•			forward 1	TM	•
487         LG:1500434.6:2001JUN22         550         572         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         573         576         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         600         626         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         607         649         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         650         693         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         650         693         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         717         730         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         731         753         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         754         759         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         783         796         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001J				549	forward 1	TM	Non-Cytosolic
487         LG:1500434.6:2001JUN22         573         576         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         577         599         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         600         626         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         650         693         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         694         716         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         717         730         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         717         730         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         754         759         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         760         782         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         797         819         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2			550	572	forward 1	TM	Transmembrane
487         LG:1500434.6:2001JUN22         577         599         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         600         626         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         627         649         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         650         693         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         717         730         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         731         753         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         754         759         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         760         782         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         783         796         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         797         819         forward 1         TM         Transmembrane           487         LG:150					forward 1	TM	Cytosolic
487         LG:1500434.6:2001JUN22         600         626         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         627         649         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         650         693         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         694         716         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         717         730         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         731         753         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         754         759         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         760         782         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         783         796         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         797         819         forward 1         TM         Transmembrane           487         LG:1500434				599	forward 1	TM	Transmembrane
487         LG:1500434.6:2001JUN22         627         649         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         650         693         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         694         716         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         717         730         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         754         759         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         760         782         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         760         782         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         797         819         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         797         819         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         820         984         forward 1         TM         Transmembrane           487         LG:1500434.6:2			600	626	forward 1	TM	Non-Cytosolic
487         LG:1500434.6:2001JUN22         650         693         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         694         716         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         717         730         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         754         759         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         760         782         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         760         782         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         797         819         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         820         984         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         985         1007         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1036         1058         forward 1         TM         Non-Cytosolic           487         LG:1500434.			627	649	forward 1	TM	Transmembrane
487         LG:1500434.6:2001JUN22         694         716         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         717         730         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         754         759         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         760         782         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         783         796         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         797         819         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         820         984         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         985         1007         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1008         1035         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1036         1058         forward 1         TM         Transmembrane           487         LG:15		_	650	693	forward 1	TM	Cytosolic
487         LG:1500434.6:2001JUN22         717         730         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         731         753         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         754         759         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         760         782         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         797         819         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         820         984         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         985         1007         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1008         1035         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1036         1058         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1059         1131         forward 1         TM         Cytosolic           487         LG:1500			694	716	forward 1	TM	Transmembrane
487         LG:1500434.6:2001JUN22         731         753         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         754         759         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         760         782         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         783         796         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         797         819         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         820         984         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         985         1007         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1036         1058         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1059         1131         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1155         1168         forward 1         TM         Non-Cytosolic           487         LG:1500		LG:1500434.6:2001JUN22	717	730	forward 1	TM	Non-Cytosolic
487         LG:1500434.6:2001JUN22         754         759         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         760         782         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         783         796         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         820         984         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         985         1007         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1008         1035         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1036         1058         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1059         1131         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1155         1168         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1155         1168         forward 1         TM         Transmembrane           487         LG:			731	753	forward 1	TM	Transmembrane
487         LG:1500434.6:2001JUN22         760         782         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         783         796         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         820         984         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         985         1007         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1008         1035         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1036         1058         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1059         1131         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1132         1154         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1155         1168         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1169         1191         forward 1         TM         Transmembrane           487         <			754	759	forward 1	TM	Cytosolic
487         LG:1500434.6:2001JUN22         783         796         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         797         819         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         820         984         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         985         1007         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1008         1035         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1036         1058         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1059         1131         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1155         1168         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1169         1191         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1192         1282         forward 1         TM         Cytosolic           487         L			760	782	forward 1	TM	Transmembrane
487         LG:1500434.6:2001JUN22         797         819         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         820         984         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         985         1007         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1008         1035         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1036         1058         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1059         1131         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1132         1154         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1155         1168         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1192         1282         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1         461         forward 2         TM         Non-Cytosolic           487         LG:1500		•	783	796	forward 1	TM	Non-Cytosolic
487         LG:1500434.6:2001JUN22         820         984         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         985         1007         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1008         1035         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1036         1058         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1059         1131         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1132         1154         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1155         1168         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1169         1191         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1192         1282         forward 2         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         462         484         forward 2         TM         Non-Cytosolic           487         LG:		LG:1500434.6:2001JUN22	797	819	forward 1	TM	Transmembrane
487         LG:1500434.6:2001JUN22         985         1007         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1008         1035         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1036         1058         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1059         1131         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1132         1154         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1155         1168         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1169         1191         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1192         1282         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1         461         forward 2         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         462         484         forward 2         TM         Transmembrane           487         <		LG:1500434.6:2001JUN22	820	984	forward 1	TM	Cytosolic
487         LG:1500434.6:2001JUN22         1008         1035         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1036         1058         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1059         1131         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1155         1168         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1169         1191         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1192         1282         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1         461         forward 2         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         462         484         forward 2         TM         Transmembrane           487         LG:1500434.6:2001JUN22         462         484         forward 2         TM         Transmembrane           487         LG:1500434.6:2001JUN22         462         484         forward 2         TM         Transmembrane			985	1007	forward 1	TM	Transmembrane
487         LG:1500434.6:2001JUN22         1036         1058         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1059         1131         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1132         1154         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1155         1168         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1169         1191         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1         461         forward 2         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         462         484         forward 2         TM         Transmembrane           487         LG:1500434.6:2001JUN22         462         484         forward 2         TM         Transmembrane           487         LG:1500434.6:2001JUN22         485         584         forward 2         TM         Cytosolic		LG:1500434.6:2001JUN22	1008	1035	forward 1	TM	Non-Cytosolic
487         LG:1500434.6:2001JUN22         1059         1131         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1132         1154         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1155         1168         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1169         1191         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1192         1282         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1         461         forward 2         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         462         484         forward 2         TM         Transmembrane           487         LG:1500434.6:2001JUN22         485         584         forward 2         TM         Cytosolic		LG:1500434.6:2001JUN22	1036	1058	forward 1	TM	Transmembrane
487         LG:1500434.6:2001JUN22         1132         1154         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1155         1168         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1169         1191         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1192         1282         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1         461         forward 2         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         462         484         forward 2         TM         Transmembrane           487         LG:1500434.6:2001JUN22         485         584         forward 2         TM         Cytosolic		LG:1500434.6:2001JUN22	1059	1131	forward 1	TM	Cytosolic
487         LG:1500434.6:2001JUN22         1155         1168         forward 1         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         1169         1191         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1192         1282         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1         461         forward 2         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         462         484         forward 2         TM         Transmembrane           487         LG:1500434.6:2001JUN22         485         584         forward 2         TM         Cytosolic						TM	
487         LG:1500434.6:2001JUN22         1169         1191         forward 1         TM         Transmembrane           487         LG:1500434.6:2001JUN22         1192         1282         forward 1         TM         Cytosolic           487         LG:1500434.6:2001JUN22         1         461         forward 2         TM         Non-Cytosolic           487         LG:1500434.6:2001JUN22         462         484         forward 2         TM         Transmembrane           487         LG:1500434.6:2001JUN22         485         584         forward 2         TM         Cytosolic			1155	1168	forward 1	TM	Non-Cytosolic
487       LG:1500434.6:2001JUN22       1192       1282       forward 1       TM       Cytosolic         487       LG:1500434.6:2001JUN22       1       461       forward 2       TM       Non-Cytosolic         487       LG:1500434.6:2001JUN22       462       484       forward 2       TM       Transmembrane         487       LG:1500434.6:2001JUN22       485       584       forward 2       TM       Cytosolic			1169			TM	
487       LG:1500434.6:2001JUN22       1       461       forward 2       TM       Non-Cytosolic         487       LG:1500434.6:2001JUN22       462       484       forward 2       TM       Transmembrane         487       LG:1500434.6:2001JUN22       485       584       forward 2       TM       Cytosolic						TM	Cytosolic
487 LG:1500434.6:2001JUN22 462 484 forward 2 TM Transmembrane 487 LG:1500434.6:2001JUN22 485 584 forward 2 TM Cytosolic			1	461	forward 2	TM	Non-Cytosolic
487 LG:1500434.6:2001JUN22 485 584 forward 2 TM Cytosolic			462	484	forward 2	TM	
			485	584	forward 2	TM	Cytosolic
			222	2			

# TABLE 2

			IADL	E Z			
	SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
	487	LG:1500434.6:2001JUN22	585	607	forward 2	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	608	621	forward 2	TM .	Non-Cytosolic
	487	LG:1500434.6:2001JUN22	622	644	forward 2	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	645	729	forward 2	TM	Cytosolic
	487	LG:1500434.6:2001JUN22	730	752	forward 2	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	753	766	forward 2	TM	Non-Cytosolic
	487	LG:1500434.6:2001JUN22	767	786	forward 2	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	787	867	forward 2	TM	Cytosolic
	487	LG:1500434.6:2001JUN22	868	890	forward 2	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	891	904	forward 2	TM	Non-Cytosolic
	487	LG:1500434.6:2001JUN22	905	927	forward 2	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	928	1017	forward 2	TM	Cytosolic
	487	LG:1500434.6:2001JUN22	1018	1040	forward 2	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	1041	1129	forward 2	TM	Non-Cytosolic
	487	LG:1500434.6:2001JUN22	1130	1152	forward 2	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	1153	1178	forward 2	TM	Cytosolic
	487	LG:1500434.6:2001JUN22	1179	1201	forward 2	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	1202	1205	forward 2	TM	Non-Cytosolic
	487	LG:1500434.6:2001JUN22	1206	1228	forward 2	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	1229	1282	forward 2	TM	Cytosolic
	487	LG:1500434.6:2001JUN22	1	211	forward 3	TM	Non-Cytosolic
	487	LG:1500434.6:2001JUN22	212	234	forward 3	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	235	515	forward 3	TM	Cytosolic
4 45	487	LG:1500434.6:2001JUN22	516	535	forward 3	TM	Transmembrane
•	487	LG:1500434.6:2001JUN22	536	544	forward 3	TM .	Non-Cytosolic
	: 487	LG:1500434.6:2001JUN22	545	564	forward 3	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	565	584	forward 3	TM	Cytosolic
	487	LG:1500434.6:2001JUN22	585	607	forward 3	TM	Transmembrane
:	487	LG:1500434.6:2001JUN22	608	643	forward 3	TM	Non-Cytosolic
	487	LG:1500434.6:2001JUN22	644	666	forward 3	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	667	688	forward 3	TM	Cytosolic
	487	LG:1500434.6:2001JUN22	689	711	forward 3	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	712	730	forward 3	TM	Non-Cytosolic
	487	LG:1500434.6:2001JUN22	731	753	forward 3	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	754	765	forward 3	TM	Cytosolic
	487	LG:1500434.6:2001JUN22	766	788	forward 3	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	789	996	forward 3	TM	Non-Cytosolic
	487	LG:1500434.6:2001JUN22	997	1019	forward 3	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	1020	1031	forward 3	TM	Cytosolic
	487	LG:1500434.6:2001JUN22		1054	forward 3	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	1055		forward 3	TM	Non-Cytosolic
	487	LG:1500434.6:2001JUN22	1094	1111	forward 3	TM	Transmembrane
	487	LG:1500434.6:2001JUN22			forward 3	TM	Cytosolic
	487	LG:1500434.6:2001JUN22	1179	1201	forward 3	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	1202	1204	forward 3	TM	Non-Cytosolic
	487	LG:1500434.6:2001JUN22	1205		forward 3	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	1223	1241	forward 3	TM	Cytosolic
	487	LG:1500434.6:2001JUN22	1242	1264	forward 3	TM	Transmembrane
	487	LG:1500434.6:2001JUN22	1265		forward 3	TM	Non-Cytosolic
	488	LG:1501550.19:2001JUN22	1	920	forward 1	TM	Non-Cytosolic
	488	LG:1501550.19:2001JUN22	921	943	forward 1	TM	Transmembrane
	488	LG:1501550.19:2001JUN22	944	1068	forward 1	TM	Cytosolic
	488	LG:1501550.19:2001JUN22	1069		forward 1	TM	Transmembrane
	488	LG:1501550.19:2001JUN22	1087		forward 1	TM	Non-Cytosolic
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	TABLE 2							
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology		
488	LG:1501550.19:2001JUN22	1111	1133	forward 1	TM	Transmembrane		
488	LG:1501550.19:2001JUN22	1134	1212	forward 1	TM	Cytosolic		
488	LG:1501550.19:2001JUN22	1213	1230	forward 1	TM	Transmembrane		
488	LG:1501550.19:2001JUN22	1231	1627	forward 1	TM	Non-Cytosolic		
488	LG:1501550.19:2001JUN22	1	1083	forward 3	TM	Non-Cytosolic		
488	LG:1501550.19:2001JUN22	1084	1106	forward 3	TM	Transmembrane		
488	LG:1501550.19:2001JUN22	1107	1211	forward 3	·TM	Cytosolic		
488	LG:1501550.19:2001JUN22	1212	1234	forward 3	TM	Transmembrane		
488	LG:1501550.19:2001JUN22	1235	1238	forward 3	TM	Non-Cytosolic		
488	LG:1501550.19:2001JUN22	1239	1261	forward 3	TM	Transmembrane		
488	LG:1501550.19:2001JUN22	1262	1281	forward 3	TM	Cytosolic		
488	LG:1501550.19:2001JUN22	1282	1304	forward 3	TM	Transmembrane		
488	LG:1501550.19:2001JUN22	1305	1357	forward 3	TM	Non-Cytosolic		
488	LG:1501550.19:2001JUN22	1358	1375	forward 3	TM	Transmembrane		
488	LG:1501550.19:2001JUN22	1376	1626	forward 3	TM	Cytosolic		
489	LG:1501923.26:2001JUN22	1	12	forward 1	· TM	Non-Cytosolic		
489	LG:1501923.26:2001JUN22	13	30	forward 1	TM	Transmembrane		
489	LG:1501923.26:2001JUN22	31	204	forward 1	TM	Cytosolic		
490	LG:150960.9:2001JUN22	1	215	forward 3	TM	Cytosolic		
490	LG:150960.9:2001JUN22	216	238	forward 3	TM	Transmembrane		
490	LG:150960.9:2001JUN22	239	257	forward 3	TM	Non-Cytosolic		
490	LG:150960.9:2001JUN22	258	277	forward 3	TM	Transmembrane		
490	LG:150960.9:2001JUN22	278	297	forward 3	TM	Cytosolic		
490	LG:150960.9:2001JUN22	298	320	forward 3	TM	Transmembrane		
490	LG:150960.9:2001JUN22	321	323	forward 3	TM	Non-Cytosolic .		
490	LG:150960.9:2001JUN22	324	346	forward 3	TM ·	Transmembrane		
490	LG:150960.9:2001JUN22	347	474	forward 3	TM	Cytosolic		
490	LG:150960.9:2001JUN22	475	497	forward 3	TM	Transmembrane		
490	LG:150960.9:2001JUN22	498	521	forward 3	TM	Non-Cytosolic		
490	LG:150960.9:2001JUN22	522	544	forward 3	TM	Transmembrane		
490	LG:150960.9:2001JUN22	545	550	forward 3	TM	Cytosolic		
490	LG:150960.9:2001JUN22	551	573	forward 3	TM	Transmembrane		
490	LG:150960.9:2001JUN22	574	763	forward 3	TM	Non-Cytosolic		
491	LG:182744.29:2001JUN22	. 1	193	forward 1	TM	Non-Cytosolic		
491	LG:182744.29:2001JUN22	194	216	forward 1	TM	Transmembrane		
491	LG:182744.29:2001JUN22	217	389	forward 1	TM	Cytosolic		
491	LG:182744.29:2001JUN22	390	409	forward 1	TM	Transmembrane		
491	LG:182744.29:2001JUN22	410	719	forward 1	TM	Non-Cytosolic		
491	LG:182744.29:2001JUN22	1	151	forward 2	TM	Non-Cytosolic		
491	LG:182744.29:2001JUN22	152	174	forward 2	TM	Transmembrane		
491	LG:182744.29:2001JUN22	175	193	forward 2	TM	Cytosolic		
491	LG:182744.29:2001JUN22	194	216	forward 2	TM	Transmembrane		
491	LG:182744.29:2001JUN22	217	719	forward 2	TM	Non-Cytosolic		
491	LG:182744.29:2001JUN22	1	65	forward 3	TM	Cytosolic		
491	LG:182744.29:2001JUN22	66	85	forward 3	TM	Transmembrane		
491	LG:182744.29:2001JUN22	86	718	forward 3	TM	Non-Cytosolic		
492	LG:197166.1:2001JUN22	1	14	forward 3	TM	Non-Cytosolic		
492	LG:197166.1:2001JUN22	15	37	forward 3	TM	Transmembrane		
492	LG:197166.1:2001JUN22	38	84	forward 3	TM	Cytosolic		
493	LG:197455.5:2001JUN22	1	202	forward 3	TM	Non-Cytosolic		
493	LG:197455.5:2001JUN22	203	225	forward 3	TM	Transmembrane		
493	LG:197455.5:2001JUN22	226	237	forward 3	TM	Cytosolic		
493	LG:197455.5:2001JUN22	238	260	forward 3	TM	Transmembrane		
493	LG:197455.5:2001JUN22	261	316	forward 3	TM	Non-Cytosolic		
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		TABL	.E 2				
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology	
493	LG:197455.5:2001JUN22	317	336	forward 3	TM	Transmembrane	
493	LG:197455.5:2001JUN22	337	379	forward 3	TM	Cytosolic	
494	LG:198251.8:2001JUN22	1	286	forward 1	TM	Cytosolic	
494	LG:198251.8:2001JUN22	287	309	forward 1	TM	Transmembrane	
494	LG:198251.8:2001JUN22	310	328	forward 1	TM	Non-Cytosolic	
494	LG:198251.8:2001JUN22	329	346	forward 1	TM	Transmembrane	
494	LG:198251.8:2001JUN22	347	507	forward 1	TM	Cytosolic	
494	LG:198251.8:2001JUN22	508	530	forward 1	TM	Transmembrane	
494	LG:198251.8:2001JUN22	531	539	forward 1	TM	Non-Cytosolic	
494	LG:198251.8:2001JUN22	540	559	forward 1	TM	Transmembrane	
494	LG:198251.8:2001JUN22	560	596	forward 1	TM	Cytosolic	
494	LG:198251.8:2001JUN22	1	78	forward 2	TM	Non-Cytosolic	
494	LG:198251.8:2001JUN22	79	101	forward 2	TM	Transmembrane	
494	LG:198251.8:2001JUN22	102	315	forward 2	TM	Cytosolic	
494	LG:198251.8:2001JUN22	316	338	forward 2	TM	Transmembrane	
494	LG:198251.8:2001JUN22	339	517	forward 2	TM	Non-Cytosolic	
494	LG:198251.8:2001JUN22	518	540	forward 2	TM	Transmembrane	
494	LG:198251.8:2001JUN22	541	596	forward 2 forward 3	TM	Cytosolic	
494	LG:198251.8:2001JUN22	1	77		TM	Non-Cytosolic Transmembrane	
494	LG:198251.8:2001JUN22	78 101	100 270	forward 3 forward 3	TM TM	Cytosolic	
494 404	LG:198251.8:2001JUN22	101 271	293	forward 3	TM	Transmembrane	
494 494	LG:198251.8:2001JUN22 LG:198251.8:2001JUN22	294	307	forward 3	TM	Non-Cytosolic	
	LG:198251.8:2001JUN22	308	330	forward 3	TM	Transmembrane :	1, 40
494	LG:198251.8:2001JUN22	. 331	506	forward 3	TM		
494	LG:198251.8:2001JUN22	507	529	forward 3	TM	Transmembrane	12.40
	LG:198251.8:2001JUN22	530	595	forward 3	TM ·	Non-Cytosolic	
495	LG:200149.3:2001JUN22	1	395	forward 1	TM	Non-Cytosolic	
	LG:200149.3:2001JUN22	396		forward 1	TM	Transmembrane	
495	LG:200149.3:2001JUN22	419	605	forward 1	TM	Cytosolic	
495	LG:200149.3:2001JUN22	606	628	forward 1	TM	Transmembrane	
495	LG:200149.3:2001JUN22	629	642	forward 1	TM	Non-Cytosolic	
495	LG:200149.3:2001JUN22	643	665	forward 1	TM	Transmembrane	
495	LG:200149.3:2001JUN22	666	723	forward 1	TM	Cytosolic	
495	LG:200149.3:2001JUN22	724	746	forward 1	TM	Transmembrane	
495	LG:200149.3:2001JUN22	747	824	forward 1	TM	Non-Cytosolic	
495	LG:200149.3:2001JUN22	825	844	forward 1	TM	Transmembrane	
495	LG:200149.3:2001JUN22	845	850	forward 1	TM	Cytosolic	
495	LG:200149.3:2001JUN22	851	873	forward 1	TM	Transmembrane	
495	LG:200149.3:2001JUN22	874	1372	forward 1	TM	Non-Cytosolic	
495	LG:200149.3:2001JUN22	1	405	forward 2	TM	Non-Cytosolic	
495	LG:200149.3:2001JUN22	406 429	428 605	forward 2 forward 2	TM	Transmembrane	
495 405	LG:200149.3:2001JUN22	429 606	628	forward 2	TM TM	Cytosolic Transmembrane	
495 495	LG:200149.3:2001JUN22 LG:200149.3:2001JUN22	629	647	forward 2	TM	Non-Cytosolic	
493 495	LG:200149.3:2001JUN22	648	665	forward 2	TM	Transmembrane	
495 495	LG:200149.3:2001JUN22 LG:200149.3:2001JUN22	666	719	forward 2	TM	Cytosolic	
495	LG:200149.3:2001JUN22	720	742	forward 2	TM	Transmembrane	
495	LG:200149.3:2001JUN22	743	819	forward 2	TM	Non-Cytosolic	
495	LG:200149.3:2001JUN22	820	842	forward 2	TM	Transmembrane	
495	LG:200149.3:2001JUN22	843		forward 2	TM	Cytosolic	
495	LG:200149.3:2001JUN22	1269	1291	forward 2	TM	Transmembrane	
495	LG:200149.3:2001JUN22			forward 2	TM	Non-Cytosolic	
495	LG:200149.3:2001JUN22			forward 2	TM	Transmembrane	
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		TAB	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
495	LG:200149.3:2001JUN22	1329	1339	forward 2	TM	Cytosolic
495	LG:200149.3:2001JUN22	1340	1362	forward 2	TM	Transmembrane
495	LG:200149.3:2001JUN22	1363	1372	forward 2	TM	Non-Cytosolic
495	LG:200149.3:2001JUN22	1	495	forward 3	TM	Non-Cytosolic
495	LG:200149.3:2001JUN22	496	515	forward 3	TM	Transmembrane
495	LG:200149.3:2001JUN22	516	575	forward 3	TM	Cytosolic
495	LG:200149.3:2001JUN22	576	595	forward 3	TM	Transmembrane
495	LG:200149.3:2001JUN22	596	604	forward 3	TM	Non-Cytosolic
495	LG:200149.3:2001JUN22	605	627	forward 3	TM	Transmembrane
495	LG:200149.3:2001JUN22	628	643	forward 3	TM	Cytosolic
495	LG:200149.3:2001JUN22	644	666	forward 3	TM	Transmembrane
495	LG:200149.3:2001JUN22	667	1371	forward 3	TM	Non-Cytosolic
496	LG:203483.3:2001JUN22	1	568	forward 2	TM	Non-Cytosolic
496	LG:203483.3:2001JUN22	569	591	forward 2	TM	Transmembrane
496	LG:203483.3:2001JUN22	592	634	forward 2	TM	Cytosolic
497	LG:209701.7:2001JUN22	1	163	forward 1	TM	Non-Cytosolic
497	LG:209701.7:2001JUN22	164	183	forward 1	TM	Transmembrane
497	LG:209701.7:2001JUN22	184	195	forward 1	TM	Cytosolic
497	LG:209701.7:2001JUN22	196	218	forward 1	TM	Transmembrane
497	LG:209701.7:2001JUN22	219	260	forward 1	TM	Non-Cytosolic
497	LG:209701.7:2001JUN22	261	283	forward 1	TM	Transmembrane
497	LG:209701.7:2001JUN22	284	316	forward I	TM	Cytosolic
497	LG:209701.7:2001JUN22	317	339	forward 1	TM	Transmembrane
497	LG:209701.7:2001JUN22	340	343	forward 1	TM	Non-Cytosolic
497	LG:209701.7:2001JUN22	344	366	forward 1	TM	Transmembrane
497	LG:209701.7:2001JUN22	367	477	forward 1	TM	Cytosolic
497	LG:209701.7:2001JUN22	478	500	forward 1	TM	Transmembrane
497	LG:209701.7:2001JUN22	501	511	forward 1	TM	Non-Cytosolic
497	LG:209701.7:2001JUN22	1	42	forward 2	TM	Cytosolic .
497	LG:209701.7:2001JUN22	43	65	forward 2	TM	Transmembrane
497	LG:209701.7:2001JUN22	66	68	forward 2	TM	Non-Cytosolic
497	LG:209701.7:2001JUN22	69	91	forward 2	TM	Transmembrane
497	LG:209701.7:2001JUN22	92	209	forward 2	TM	Cytosolic
497	LG:209701.7:2001JUN22	210	232	forward 2	TM	Transmembrane
497	LG:209701.7:2001JUN22	233	510	forward 2	TM	Non-Cytosolic
497	LG:209701.7:2001JUN22	1	225	forward 3	TM	Non-Cytosolic
497	LG:209701.7:2001JUN22	226	248	forward 3	TM	Transmembrane
497	LG:209701.7:2001JUN22	249	260	forward 3	TM	Cytosolic
497	LG:209701.7:2001JUN22	261	283	forward 3	TM	Transmembrane
497	LG:209701.7:2001JUN22	284	510	forward 3	TM	Non-Cytosolic
498	LG:210614.1:2001JUN22	1	77	forward 1	TM	Non-Cytosolic
498	LG:210614.1:2001JUN22	78	100	forward 1	TM	Transmembrane
498	LG:210614.1:2001JUN22	101	135	forward 1	TM	Cytosolic
498	LG:210614.1:2001JUN22	136	158	forward 1	TM	Transmembrane
498	LG:210614.1:2001JUN22	159	392	forward 1	TM	Non-Cytosolic
498	LG:210614.1:2001JUN22	1	134	forward 2	TM	Cytosolic
498	LG:210614.1:2001JUN22	135	157	forward 2	TM	Transmembrane
498	LG:210614.1:2001JUN22	158	392	forward 2	TM	Non-Cytosolic
499	LG:210672.1:2001JUN22	1	397	forward 1	TM	Cytosolic
499	LG:210672.1:2001JUN22	398	420	forward 1	TM	Transmembrane
499	LG:210672.1:2001JUN22	421	468	forward 1	TM	Non-Cytosolic
499	LG:210672.1:2001JUN22	469	491	forward 1	TM	Transmembrane
499	LG:210672.1:2001JUN22	492	524	forward 1	TM	Cytosolic
499	LG:210672.1:2001JUN22	525	547	forward 1	TM	Transmembrane
		22	b			

SEQ D NO:			TABL	.E 2			
499	SEO D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
499         LG:210672.1:2001JUN22         1         76         forward 2         TM         Cytosolic           499         LG:210672.1:2001JUN22         100         102         forward 2         TM         Transmembrane           499         LG:210672.1:2001JUN22         103         125         forward 2         TM         Transmembrane           499         LG:210672.1:2001JUN22         126         402         forward 2         TM         Transmembrane           499         LG:210672.1:2001JUN22         240         425         forward 2         TM         Non-Cytosolic           500         LG:215051.10:2001JUN22         1         543         forward 2         TM         Non-Cytosolic           500         LG:215051.10:2001JUN22         567         729         forward 2         TM         Non-Cytosolic           501         LG:218989.3:2001JUN22         1         105         forward 2         TM         Cytosolic           501         LG:218989.3:2001JUN22         12         1218         forward 2         TM         Non-Cytosolic           501         LG:218989.3:2001JUN22         129         241         forward 2         TM         Transmembrane           501         LG:218989.3:2001JUN22 <td>_</td> <td></td> <td></td> <td>794</td> <td>forward 1</td> <td>TM</td> <td>Non-Cytosolic</td>	_			794	forward 1	TM	Non-Cytosolic
499			1	76	forward 2	TM	-
499         LG:210672.1:2001JUN22         100         102         forward 2         TM         Non-Cytosolic           499         LG:210672.1:2001JUN22         103         125         forward 2         TM         Transmembrane           499         LG:210672.1:2001JUN22         426         794         forward 2         TM         Non-Cytosolic           500         LG:215051.10:2001JUN22         426         794         forward 2         TM         Non-Cytosolic           500         LG:215051.10:2001JUN22         426         794         forward 2         TM         Non-Cytosolic           500         LG:215051.10:2001JUN22         17         507         720         forward 2         TM         Cytosolic           501         LG:218989.3:2001JUN22         106         128         forward 2         TM         Cytosolic           501         LG:218989.3:2001JUN22         12         218         forward 2         TM         Non-Cytosolic           501         LG:218989.3:2001JUN22         19         241         forward 2         TM         Transmembrane           501         LG:218989.3:2001JUN22         29         241         forward 1         TM         Transmembrane           501			77	99	forward 2	TM	Transmembrane
499         LG.210672.1:2001UN22         103         125         forward 2         TM         Transmembrane Cytosolic           499         LG.210672.1:2001UN22         403         425         forward 2         TM         Cytosolic           499         LG.216672.1:2001UN22         426         794         forward 2         TM         Non-Cytosolic           500         LG.215051.10:2001UN22         544         566         forward 2         TM         Non-Cytosolic           500         LG.215051.10:2001UN22         547         566         forward 2         TM         Cytosolic           501         LG.218989.3:2001UN22         106         128         forward 2         TM         Cytosolic           501         LG.218989.3:2001UN22         106         128         forward 2         TM         Transmembrane           501         LG.218989.3:2001UN22         219         218         forward 2         TM         Transmembrane           501         LG.218989.3:2001UN22         219         214         forward 1         TM         Cytosolic           502         LG.228107.11:2001UN22         272         294         forward 1         TM         Cytosolic           502         LG.228107.11:2001UN22			100	102	forward 2	TM	Non-Cytosolic
499         LG:210672.1:2001JUN22         126         402         forward 2         TM         Cytosolic           499         LG:210672.1:2001JUN22         426         794         forward 2         TM         Non-Cytosolic           500         LG:215051.10:2001JUN22         426         794         forward 2         TM         Non-Cytosolic           500         LG:215051.10:2001JUN22         567         729         forward 2         TM         Non-Cytosolic           501         LG:218989.3:2001JUN22         1         105         forward 2         TM         Cytosolic           501         LG:218989.3:2001JUN22         106         128         forward 2         TM         Transmembrane           501         LG:218989.3:2001JUN22         129         218         forward 2         TM         Transmembrane           501         LG:218989.3:2001JUN22         242         255         forward 2         TM         Cytosolic           501         LG:218989.3:2001JUN22         242         255         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         242         255         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22		•	103	125	forward 2	TM	-
499         LG:210672.1:2001JUN22         403         425         forward 2         TM         Transmembrane           499         LG:210672.1:2001JUN22         1         543         forward 2         TM         Non-Cytosolic           500         LG:215051.10:2001JUN22         544         566         forward 2         TM         Non-Cytosolic           500         LG:218989.3:2001JUN22         1         105         forward 2         TM         Cytosolic           501         LG:218989.3:2001JUN22         1         105         forward 2         TM         Cytosolic           501         LG:218989.3:2001JUN22         129         218         forward 2         TM         Non-Cytosolic           501         LG:218989.3:2001JUN22         219         241         forward 2         TM         Non-Cytosolic           501         LG:218989.3:2001JUN22         242         255         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         242         255         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         342         364         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22<			126	402			
499			403	425	forward 2		Transmembrane
500         LG:215051.10:2001JUN22         1         543         forward 2         TM         Non-Cytosolic           500         LG:215051.10:2001JUN22         547         566         forward 2         TM         Transmembrane           500         LG:218989.3:2001JUN22         1         105         forward 2         TM         Cytosolic           501         LG:218989.3:2001JUN22         129         218         forward 2         TM         Non-Cytosolic           501         LG:218989.3:2001JUN22         219         241         forward 2         TM         Non-Cytosolic           501         LG:218989.3:2001JUN22         242         255         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         242         255         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         272         294         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         342         364         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         343         364         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2					forward 2.	TM	Non-Cytosolic
500         LG:215051.10:2001JUN22         544         566         forward 2         TM         Transmembrane           501         LG:215051.10:2001JUN22         1         105         forward 2         TM         Cytosolic           501         LG:218898.3:2001JUN22         106         128         forward 2         TM         Transmembrane           501         LG:218989.3:2001JUN22         219         241         forward 2         TM         Non-Cytosolic           501         LG:218989.3:2001JUN22         219         241         forward 2         TM         Non-Cytosolic           501         LG:218989.3:2001JUN22         242         255         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         272         294         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         342         364         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         379         401         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         402         413         forward 1         TM         Transmembrane           502         LG:228107.11:200			1		forward 2	TM	•
S00					forward 2	TM	•
Soli			567	729	forward 2	TM	Cytosolic
S01					forward 2	TM	<u>-</u>
S01			106		forward 2	TM	-
501         LG:218989.3:2001JUN22         219         241         forward 2         TM         Transmembrane           501         LG:218989.3:2001JUN22         242         255         forward 2         TM         Octosolic           502         LG:228107.11:2001JUN22         272         294         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         295         341         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         342         364         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         379         401         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         402         413         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         477         496         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         477         496         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         497         497         forward 1         TM         Transmembrane           502         LG:228107.11:200			129	218	forward 2	TM	Non-Cytosolic
501         LG:218989.3:2001JUN22         242         255         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         1         271         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         295         341         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         363         378         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         369         401         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         379         401         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         492         414         436         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         437         476         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         437         467         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         497         497         forward 1         TM         Tyansmembrane           502					forward 2		-
502         LG:228107.11:2001JUN22         272         294         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         272         294         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         342         364         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         342         364         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         349         401         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         402         413         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         477         496         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         497         497         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         497         497         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         498         520         forward 1         TM         Non-Cytosolic           502         LG				255	forward 2	TM	Cytosolic
502         LG:228107.11:2001JUN22         272         294         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         295         341         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         365         378         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         365         378         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         401         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         414         436         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         477         496         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         477         496         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         477         497         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         498         520         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22			1	271	forward 1	TM	•
502         LG:228107.11:2001JUN22         295         341         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         342         364         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         379         401         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         402         413         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         414         436         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         437         476         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         497         497         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         497         497         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         551         570         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         551         570         forward 1         TM         Cytosolic           502         LG:228107.11:2			272		forward I		
502         LG:228107.11:2001JUN22         342         364         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         365         378         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         402         413         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         414         436         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         437         476         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         497         496         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         497         497         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         521         550         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         521         550         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         571         702         forward 1         TM         Transmembrane           502         LG:228			295		forward 1	TM	Cytosolic
502         LG:228107.11:2001JUN22         365         378         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         379         401         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         414         436         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         437         476         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         447         496         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         498         520         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         521         550         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         551         570         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         551         570         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         76         781         forward 1         TM         Transmembrane           502         LG:228107.1				364	forward 1		•
502         LG:228107.11:2001JUN22         379         401         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         402         413         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         414         436         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         437         476         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         497         497         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         498         520         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         521         550         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         551         570         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         703         725         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         726         781         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2			365			TM	
502         LG:228107.11:2001JUN22         402         413         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         414         436         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         437         476         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         497         496         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         498         520         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         551         550         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         551         570         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         571         702         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         726         781         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         726         781         forward 1         TM         Transmembrane           502         LG:228107.					forward 1	TM	-
502         LG:228107.11:2001JUN22         414         436         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         437         476         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         497         496         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         497         497         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         521         550         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         551         570         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         551         570         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         703         725         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         782         801         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         782         801         forward 1         TM         Transmembrane           502         LG:228107.				413		TM	Cytosolic
502         LG:228107.11:2001JUN22         437         476         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         477         496         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         497         497         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         521         550         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         551         570         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         571         702         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         703         725         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         726         781         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         726         781         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         801         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22			414		forward 1		Transmembrane
502         LG:228107.11:2001JUN22         477         496         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         497         497         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         498         520         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         551         550         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         571         702         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         703         725         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         726         781         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         782         801         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         802         922         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         946         964         forward 1         TM         Transmembrane           502         LG:228107.			437		forward 1		Non-Cytosolic
502         LG:228107.11:2001JUN22         497         497         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         498         520         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         521         550         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         551         570         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         703         725         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         726         781         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         726         781         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         802         922         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         802         922         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         945         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22 <td< td=""><td></td><td></td><td></td><td>496</td><td>forward 1</td><td>TM</td><td>-</td></td<>				496	forward 1	TM	-
502         LG:228107.11:2001JUN22         498         520         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         521         550         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         551         570         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         703         725         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         726         781         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         782         801         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         802         922         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         946         964         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         946         964         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         985         1028         forward 1         TM         Non-Cytosolic           502         LG:228107.11:			· 497 ·	497	forward 1	TM	Cytosolic
502         LG:228107.11:2001JUN22         521         550         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         551         570         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         703         725         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         726         781         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         782         801         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         802         922         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         923         945         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         946         964         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         985         984         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         985         1028         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001		LG:228107.11:2001JUN22		520	forward 1	TM	•
502         LG:228107.11:2001JUN22         551         570         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         571         702         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         703         725         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         782         801         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         802         922         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         923         945         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         946         964         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         965         984         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         965         984         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         985         1028         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001		LG:228107.11:2001JUN22	521	550	forward 1	TM	Non-Cytosolic
502         LG:228107.11:2001JUN22         571         702         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         703         725         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         726         781         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         782         801         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         802         922         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         946         964         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         946         964         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         965         984         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         985         1028         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         1         405         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22<			551	570	forward 1	TM	Transmembrane
502         LG:228107.11:2001JUN22         726         781         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         782         801         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         802         922         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         946         964         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         965         984         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         985         1028         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         985         1028         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         985         1028         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         406         428         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         485         504         forward 2         TM         Transmembrane           502         LG:228107.1	502	LG:228107.11:2001JUN22	571	702	forward 1	TM	Cytosolic
502         LG:228107.11:2001JUN22         782         801         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         802         922         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         946         964         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         965         984         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         985         1028         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         985         1028         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         1         405         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         406         428         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         485         504         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         505         783         forward 2         TM         Non-Cytosolic           502         LG:228107.	502	LG:228107.11:2001JUN22	703	725	forward 1	TM	Transmembrane
502         LG:228107.11:2001JUN22         802         922         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         923         945         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         946         964         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         985         1028         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         1         405         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         406         428         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         484         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         485         504         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         505         783         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         802         906         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22	502	LG:228107.11:2001JUN22	726	781	forward 1	TM	Non-Cytosolic
502         LG:228107.11:2001JUN22         923         945         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         946         964         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         965         984         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         985         1028         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         406         428         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         429         484         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         485         504         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         505         783         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         505         784         801         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         907         929         forward 2         TM         Transmembrane           502 </td <td>502</td> <td>LG:228107.11:2001JUN22</td> <td>782</td> <td>801</td> <td>forward 1</td> <td>TM</td> <td>Transmembrane</td>	502	LG:228107.11:2001JUN22	782	801	forward 1	TM	Transmembrane
502         LG:228107.11:2001JUN22         946         964         forward 1         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         965         984         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         985         1028         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         1         405         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         406         428         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         429         484         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         485         504         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         505         783         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         784         801         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         907         929         forward 2         TM         Non-Cytosolic           502         LG:228107.11:20	502	LG:228107.11:2001JUN22	802	922	forward 1	TM	Cytosolic
502         LG:228107.11:2001JUN22         965         984         forward 1         TM         Transmembrane           502         LG:228107.11:2001JUN22         1         405         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         406         428         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         429         484         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         485         504         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         505         783         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         784         801         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         802         906         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         930         938         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         939         961         forward 2         TM         Transmembrane           502         LG:228107.11	502	LG:228107.11:2001JUN22	923	945	forward 1	TM	Transmembrane
502         LG:228107.11:2001JUN22         985         1028         forward 1         TM         Cytosolic           502         LG:228107.11:2001JUN22         1         405         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         406         428         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         429         484         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         485         504         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         505         783         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         784         801         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         802         906         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         930         938         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         939         961         forward 2         TM         Transmembrane           502         LG:228107.1	502	LG:228107.11:2001JUN22	946	964	forward 1	TM	Non-Cytosolic
502         LG:228107.11:2001JUN22         1         405         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         406         428         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         429         484         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         485         504         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         505         783         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         784         801         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         802         906         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         907         929         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         939         961         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         962         967         forward 2         TM         Transmembrane           502         LG:22810	502	LG:228107.11:2001JUN22	965	984		TM	
502         LG:228107.11:2001JUN22         406         428         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         429         484         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         485         504         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         505         783         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         784         801         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         802         906         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         907         929         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         930         938         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         939         961         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         962         967         forward 2         TM         Transmembrane           502         LG:228107.	502	LG:228107.11:2001JUN22	985	1028	forward 1	TM	Cytosolic
502         LG:228107.11:2001JUN22         429         484         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         485         504         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         505         783         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         784         801         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         802         906         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         907         929         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         930         938         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         939         961         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         962         967         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         968         990         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22	502	LG:228107.11:2001JUN22	1	405	forward 2	TM	Non-Cytosolic
502         LG:228107.11:2001JUN22         485         504         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         505         783         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         784         801         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         802         906         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         907         929         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         930         938         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         939         961         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         962         967         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         968         990         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         968         990         forward 2         TM         Non-Cytosolic           502         LG:228107.	502	LG:228107.11:2001JUN22	406	428			
502         LG:228107.11:2001JUN22         505         783         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         784         801         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         802         906         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         907         929         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         930         938         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         939         961         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         962         967         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         968         990         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         991         1004         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         1005         1027         forward 2         TM         Transmembrane           502         LG:2281	502	LG:228107.11:2001JUN22	429	484	forward 2	TM	Cytosolic
502         LG:228107.11:2001JUN22         784         801         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         802         906         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         907         929         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         930         938         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         939         961         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         962         967         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         968         990         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         991         1004         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         1005         1027         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         1005         1027         forward 2         TM         Transmembrane	502	LG:228107.11:2001JUN22	485	504	forward 2	TM	
502         LG:228107.11:2001JUN22         802         906 forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         907         929 forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         930         938 forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         939         961 forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         962         967 forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         968         990 forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         991 1004 forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         1005 1027 forward 2         TM         Transmembrane	502	LG:228107.11:2001JUN22	505	783	forward 2	· TM	Non-Cytosolic
502         LG:228107.11:2001JUN22         907         929         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         930         938         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         939         961         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         962         967         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         968         990         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         991         1004         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         1005         1027         forward 2         TM         Transmembrane	502	LG:228107.11:2001JUN22	784	801	forward 2	TM	
502         LG:228107.11:2001JUN22         930         938         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         939         961         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         962         967         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         968         990         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         991         1004         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         1005         1027         forward 2         TM         Transmembrane	502	LG:228107.11:2001JUN22	802	906		TM	Cytosolic
502         LG:228107.11:2001JUN22         939         961         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         962         967         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         968         990         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         991         1004         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         1005         1027         forward 2         TM         Transmembrane	502	LG:228107.11:2001JUN22	907	929		TM	Transmembrane
502         LG:228107.11:2001JUN22         962         967         forward 2         TM         Cytosolic           502         LG:228107.11:2001JUN22         968         990         forward 2         TM         Transmembrane           502         LG:228107.11:2001JUN22         991         1004         forward 2         TM         Non-Cytosolic           502         LG:228107.11:2001JUN22         1005         1027         forward 2         TM         Transmembrane	502	LG:228107.11:2001JUN22	930	938	forward 2		•
502       LG:228107.11:2001JUN22       968       990       forward 2       TM       Transmembrane         502       LG:228107.11:2001JUN22       991       1004       forward 2       TM       Non-Cytosolic         502       LG:228107.11:2001JUN22       1005       1027       forward 2       TM       Transmembrane	502	LG:228107.11:2001JUN22	939	961	forward 2	TM	Transmembrane
502 LG:228107.11:2001JUN22 991 1004 forward 2 TM Non-Cytosolic 502 LG:228107.11:2001JUN22 1005 1027 forward 2 TM Transmembrane	502	LG:228107.11:2001JUN22	962				•
502 LG:228107.11:2001JUN22 1005 1027 forward 2 TM Transmembrane		LG:228107.11:2001JUN22					
		LG:228107.11:2001JUN22	991				-
502 LG:228107.11:2001JUN22 1028 1028 forward 2 TM Cytosolic	502	LG:228107.11:2001JUN22					
227	502	LG:228107.11:2001JUN22	1028		forward 2	TM	Cytosolic

		TAB	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
502	LG:228107.11:2001JUN22	1	47 i	forward 3	TM	Non-Cytosolic
502	LG:228107.11:2001JUN22	472	494	forward 3	TM	Transmembrane
502	LG:228107.11:2001JUN22	495	713	forward 3	TM	Cytosolic
502	LG:228107.11:2001JUN22	714	733	forward 3	TM	Transmembrane
502	LG:228107.11:2001JUN22	734	778	forward 3	TM	Non-Cytosolic
502	LG:228107.11:2001JUN22	779	801	forward 3	TM	Transmembrane
502	LG:228107.11:2001JUN22	802	900	forward 3	TM	Cytosolic
502	LG:228107.11:2001JUN22	901	923	forward 3	TM	Transmembrane
502	LG:228107.11:2001JUN22	924	932	forward 3	TM	Non-Cytosolic
502	LG:228107.11:2001JUN22	933	955	forward 3	TM	Transmembrane
502	LG:228107.11:2001JUN22	956	1027	forward 3	TM	Cytosolic
503	LG:231016.1:2001JUN22	1	4	forward 2	TM	Non-Cytosolic
503	LG:231016.1:2001JUN22	5	27	forward 2	TM	Transmembrane
503	LG:231016.1:2001JUN22	28	31	forward 2	TM	Cytosolic
503	LG:231016.1:2001JUN22	32	54	forward 2	TM	Transmembrane
503	LG:231016.1:2001JUN22	55	304	forward 2	TM	Non-Cytosolic
504	LG:235943.60:2001JUN22	28	114	forward 1	SP	
504	LG:235943.60:2001JUN22	1	14	forward 1	TM	Non-Cytosolic
504	LG:235943.60:2001JUN22	15	37	forward 1	TM	Transmembrane
504	LG:235943.60:2001JUN22	38	80	forward 1	TM	Cytosolic
504	LG:235943.60:2001JUN22	81	103	forward 1	TM	Transmembrane
504	LG:235943.60:2001JUN22	104	363	forward 1	TM	Non-Cytosolic
505	LG:235970.14:2001JUN22	1	109	forward 1	TM	Cytosolic
505	LG:235970.14:2001JUN22	110	129	forward 1	TM	Transmembrane
505	LG:235970.14:2001JUN22		138	forward 1	TM	Non-Cytosolic
505	LG:235970.14:2001JUN22	139		forward 1	TM	Transmembrane
505	LG:235970.14:2001JUN22		438	forward 1	TM	Cytosolic
505	LG:235970.14:2001JUN22	439	461	forward 1	TM	Transmembrane
505	LG:235970.14:2001JUN22	. 462	679	forward 1	TM	Non-Cytosolic
506	LG:236697.15:2001JUN22	1	534	forward 1	TM	Non-Cytosolic
506	LG:236697.15:2001JUN22	535	557	forward 1	TM	Transmembrane
506	LG:236697.15:2001JUN22	558	577	forward 1	TM	Cytosolic
506	LG:236697.15:2001JUN22	578	597	forward 1	TM	Transmembrane
506	LG:236697.15:2001JUN22	598	616	forward 1	TM	Non-Cytosolic
506	LG:236697.15:2001JUN22	617	639	forward 1	TM	Transmembrane
506	LG:236697.15:2001JUN22	640	682	forward 1	TM	Cytosolic
506	LG:236697.15:2001JUN22	1	218	forward 2	TM	Non-Cytosolic
506	LG:236697.15:2001JUN22	219	241	forward 2	TM	Transmembrane
506	LG:236697.15:2001JUN22	242	370	forward 2	TM	Cytosolic
506	LG:236697.15:2001JUN22	371	388	forward 2	TM	Transmembrane
506	LG:236697.15:2001JUN22	389	542	forward 2	TM	Non-Cytosolic
506	LG:236697.15:2001JUN22	543	565	forward 2	TM	Transmembrane
506	LG:236697.15:2001JUN22	566	577	forward 2	TM	Cytosolic
506	LG:236697.15:2001JUN22	578	595	forward 2	TM	Transmembrane
506 .	LG:236697.15:2001JUN22	596	609	forward 2	TM	Non-Cytosolic
506	LG:236697.15:2001JUN22	610	629	forward 2	TM	Transmembrane
506	LG:236697.15:2001JUN22	630	649	forward 2	TM	Cytosolic
506	LG:236697.15:2001JUN22	650	672	forward 2	TM	Transmembrane
506	LG:236697.15:2001JUN22	673	682	forward 2	TM	Non-Cytosolic
506	LG:236697.15:2001JUN22	1	463	forward 3	TM	Non-Cytosolic
506	LG:236697.15:2001JUN22	464	486	forward 3	TM	Transmembrane
506	LG:236697.15:2001JUN22	487	535	forward 3	TM	Cytosolic
506	LG:236697.15:2001JUN22	536	558	forward 3	TM	Transmembrane
506	LG:236697.15:2001JUN22	559	572	forward 3	TM	Non-Cytosolic

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	TABLE 2								
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology			
506	LG:236697.15:2001JUN22	573	592	forward 3	TM	Transmembrane			
506	LG:236697.15:2001JUN22	593	614	forward 3	TM	Cytosolic			
506	LG:236697.15:2001JUN22	615	637	forward 3	TM	Transmembrane			
506	LG:236697.15:2001JUN22	638	681	forward 3	TM	Non-Cytosolic			
507	LG:238576.3:2001JUN22	1	36	forward 1	TM	Non-Cytosolic			
507	LG:238576.3:2001JUN22	37	59	forward 1	TM	Transmembrane			
507	LG:238576.3:2001JUN22	60	150	forward 1	TM	Cytosolic			
508	LG:238602.2:2001JUN22	1	139	forward.1	TM	Cytosolic			
508	LG:238602.2:2001JUN22	140	162	forward 1	TM	Transmembrane			
508	LG:238602.2:2001JUN22	163	183	forward 1	TM	Non-Cytosolic			
508	LG:238602.2:2001JUN22	184	206	forward 1	TM	Transmembrane			
508	LG:238602.2:2001JUN22	207	210	forward 1	TM	Cytosolic			
508	LG:238602.2:2001JUN22	211	233	forward 1	TM	Transmembrane			
508	LG:238602.2:2001JUN22	234	268	forward 1	TM	Non-Cytosolic			
508	LG:238602.2:2001JUN22	269	291	forward 1	TM	Transmembrane			
508	LG:238602.2:2001JUN22	292	402	forward 1	TM	Cytosolic			
508	LG:238602.2:2001JUN22	403	425	forward 1	TM	Transmembrane			
508	LG:238602.2:2001JUN22	426	439	forward 1	TM	Non-Cytosolic			
508	LG:238602.2:2001JUN22	440	462	forward 1	TM	Transmembrane			
508	LG:238602.2:2001JUN22	463	487	forward 1	TM	Cytosolic			
508	LG:238602.2:2001JUN22	488	507	forward 1	TM	Transmembrane			
508	LG:238602.2:2001JUN22	508	892	forward 1	TM	Non-Cytosolic			
508	LG:238602.2:2001JUN22	1	173	forward 2	TM	Cytosolic			
508	LG:238602.2:2001JUN22	174	196	forward 2	TM	Transmembrane			
508	LG:238602.2:2001JUN22	.197	210	forward 2	TM	Non-Cytosolic			
· 508	LG:238602.2:2001JUN22	211	233	forward 2	TM	Transmembrane			
508	LG:238602.2:2001JUN22	234	398	forward 2	TM	Cytosolic			
508	LG:238602.2:2001JUN22	399	418	forward 2	TM	Transmembrane			
508	LG:238602.2:2001JUN22	419	437	forward 2	TM	Non-Cytosolic			
508	LG:238602.2:2001JUN22	438	460	forward 2	TM	Transmembrane			
508	LG:238602.2:2001JUN22	461	480	forward 2	TM	Cytosolic			
508	LG:238602.2:2001JUN22	481	503	forward 2	TM	Transmembrane			
508	LG:238602.2:2001JUN22	504	892	forward 2	TM	Non-Cytosolic			
508	LG:238602.2:2001JUN22	1	31	forward 3	TM	Cytosolic			
508	LG:238602.2:2001JUN22	32	49	forward 3	TM	Transmembrane			
508	LG:238602.2:2001JUN22	50	52	forward 3	TM	Non-Cytosolic			
508	LG:238602.2:2001JUN22	53	75	forward 3	TM	Transmembrane			
508	LG:238602.2:2001JUN22	76	160	forward 3	TM	Cytosolic			
508	LG:238602.2:2001JUN22	161	183	forward 3	TM	Transmembrane			
508	LG:238602.2:2001JUN22	184	210	forward 3	TM	Non-Cytosolic			
508	LG:238602.2:2001JUN22	211	233	forward 3	TM	Transmembrane			
508	LG:238602.2:2001JUN22	234	303	forward 3	TM	Cytosolic			
508	LG:238602.2:2001JUN22	304	326	forward 3	TM	Transmembrane			
508	LG:238602.2:2001JUN22	327	356	forward 3	TM	Non-Cytosolic			
508	LG:238602.2:2001JUN22	. 357	379	forward 3	TM	Transmembrane			
508	LG:238602.2:2001JUN22	380	395	forward 3	TM	Cytosolic			
508	LG:238602.2:2001JUN22	396	415	forward 3	TM	Transmembrane			
508	LG:238602.2:2001JUN22	416	439	forward 3	TM	Non-Cytosolic			
508	LG:238602.2:2001JUN22	440	462	forward 3	TM	Transmembrane			
508	LG:238602.2:2001JUN22	463	489	forward 3	TM	Cytosolic			
508	LG:238602.2:2001JUN22	490 500	508	forward 3	TM	Transmembrane			
508	LG:238602.2:2001JUN22	509	891	forward 3	TM	Non-Cytosolic			
509	LG:241291.46:2001JUN22	1	633	forward 1	TM	Non-Cytosolic			
509	LG:241291.46:2001JUN22	634 229	656	forward 1	TM	Transmembrane			

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# TABLE 2

SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
509	LG:241291.46:2001JUN22	657	1032	forward 1	TM	Cytosolic
509	LG:241291.46:2001JUN22	1033	1055	forward 1	TM	Transmembrane
509	LG:241291.46:2001JUN22	1056	1064	forward 1	TM	Non-Cytosolic
509	LG:241291.46:2001JUN22	1065	1084	forward 1	TM	Transmembrane
509	LG:241291.46:2001JUN22	1085		forward 1	· TM	Cytosolic
509	LG:241291.46:2001JUN22	1273		forward 1	TM	Transmembrane
		1275	2007	forward 1	TM	Non-Cytosolic
509	LG:241291.46:2001JUN22	2008	2025	forward 1	TM	Transmembrane.
509	LG:241291.46:2001JUN22					
509	LG:241291.46:2001JUN22	2026	2037	forward 1	TM TM	Cytosolic Transmembrane
509	LG:241291.46:2001JUN22	2038	2060	forward 1 forward 1		
509	LG:241291.46:2001JUN22	2061	2155		TM	Non-Cytosolic
509	LG:241291.46:2001JUN22	2156	2178	forward 1	TM	Transmembrane
509	LG:241291.46:2001JUN22	2179		forward 1	TM	Cytosolic
509	LG:241291.46:2001JUN22	2191	2213	forward 1	TM	Transmembrane
509	LG:241291.46:2001JUN22	2214	2653	forward 1	TM	Non-Cytosolic
509	LG:241291.46:2001JUN22	1	2047	forward 2	TM	Non-Cytosolic
509	LG:241291.46:2001JUN22	2048	2070	forward 2	TM	Transmembrane
509	LG:241291.46:2001JUN22	2071	2162		TM ·	Cytosolic
509	LG:241291.46:2001JUN22	2163	2185	forward 2	TM	Transmembrane
509	LG:241291.46:2001JUN22	2186	2199	forward 2	TM	Non-Cytosolic
509	LG:241291.46:2001JUN22	2200	2222	forward 2	TM	Transmembrane
509	LG:241291.46:2001JUN22	2223	2228	forward 2	TM	Cytosolic
509	LG:241291.46:2001JUN22	2229	2248	forward 2	TM	Transmembrane
509	LG:241291.46:2001JUN22	2249	2262	forward 2	TM	Non-Cytosolic
509	LG:241291.46:2001JUN22	2263	2285	. forward <sub>2</sub>	TM	Transmembrane
509	LG:241291.46:2001JUN22	2286		forward 2	· · · TM	Cytosolic
509	LG:241291.46:2001JUN22	- 2411	2433	forward 2	TM	Transmembrane ·
509	LG:241291.46:2001JUN22	2434	2447	forward 2	TM	Non-Cytosolic
509	LG:241291.46:2001JUN22	2448	2470	forward 2	TM ·	Transmembrane
509	LG:241291.46:2001JUN22	2471	2652	forward 2	TM	Cytosolic
509	LG:241291.46:2001JUN22	1	877	forward 3	TM	Non-Cytosolic
509	LG:241291.46:2001JUN22	878	897	forward 3	TM	Transmembrane
509	LG:241291.46:2001JUN22	898	917	forward 3	TM	Cytosolic
509	LG:241291.46:2001JUN22	918	940	forward 3	TM	Transmembrane
509	LG:241291.46:2001JUN22	941	1060	forward 3	TM	Non-Cytosolic
509	LG:241291.46:2001JUN22	1061	1083	forward 3	TM	Transmembrane
509	LG:241291.46:2001JUN22	1084	1103	forward 3	TM	Cytosolic
509	LG:241291.46:2001JUN22	1104	1126	forward 3	TM	Transmembrane
509	LG:241291.46:2001JUN22	1127	1964	forward 3	TM	Non-Cytosolic
509	LG:241291.46:2001JUN22	1965	1984	forward 3	TM	Transmembrane
509	LG:241291.46:2001JUN22	1985	1996	forward 3	TM	Cytosolic
509	LG:241291.46:2001JUN22	1997	2013	forward 3	TM	Transmembrane
509	LG:241291.46:2001JUN22	2014	2022	forward 3	TM	Non-Cytosolic
509	LG:241291.46:2001JUN22	2023	2045	forward 3	TM	Transmembrane
509	LG:241291.46:2001JUN22	2046	2162	forward 3	TM	Cytosolic
509	LG:241291.46:2001JUN22	2163	2185	forward 3	TM	Transmembrane
509	LG:241291.46:2001JUN22	2186	2199	forward 3	TM	Non-Cytosolic
509	LG:241291.46:2001JUN22	2200		forward 3	TM	Transmembrane
509	LG:241291.46:2001JUN22	2223		forward 3	TM	Cytosolic
509	LG:241291.46:2001JUN22	2564		forward 3	TM	Transmembrane
509	LG:241291.46:2001JUN22	2587		forward 3	TM	Non-Cytosolic
509	LG:241291.46:2001JUN22	2611		forward 3	TM	Transmembrane
509	LG:241291.46:2001JUN22	2634		forward 3	TM	Cytosolic
510	LG:241742.1:2001JUN22	1		forward 1	TM	Non-Cytosolic
5.0		230				

•		TABL	.E 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
510	LG:241742.1:2001JUN22	1432	1454	forward 1	TM	Transmembrane
510	LG:241742.1:2001JUN22	1455	1783	forward 1	TM	Cytosolic
510	LG:241742.1:2001JUN22	1784	1806	forward 1	TM	Transmembrane
510	LG:241742.1:2001JUN22	1807	1847	forward 1	TM	Non-Cytosolic
510	LG:241742.1:2001JUN22	1848	1870	forward 1	TM	Transmembrane
ʻ 510	LG:241742.1:2001JUN22	1871	1899	forward 1	TM	Cytosolic
510	LG:241742.1:2001JUN22	1	1018	forward 2	TM	Non-Cytosolic
510	LG:241742.1:2001JUN22	1019	1041	forward 2	TM	Transmembrane
510	LG:241742.1:2001JUN22	1042	1133	forward 2	TM	Cytosolic
510	LG:241742.1:2001JUN22	1134	1156	forward 2	TM	Transmembrane
510	LG:241742.1:2001JUN22	1157	1899	forward 2	TM	Non-Cytosolic
510	LG:241742.1:2001JUN22	1	1014	forward 3	TM	Non-Cytosolic
510	LG:241742.1:2001JUN22	1015	1037	forward 3	TM	Transmembrane
510	LG:241742.1:2001JUN22	1038	1136	forward 3	TM	Cytosolic
510	LG:241742.1:2001JUN22	1137	1159	forward 3	TM	Transmembrane
510	LG:241742.1:2001JUN22	1160	1898	forward 3	TM	Non-Cytosolic
511	LG:244520.33:2001JUN22	1	106	forward 3	TM	Non-Cytosolic
511 •	LG:244520.33:2001JUN22	107	129	forward 3	TM	Transmembrane
511	LG:244520.33:2001JUN22	130	148	forward 3	TM	Cytosolic
511	LG:244520.33:2001JUN22	149	168	forward 3	TM	Transmembrane
511	LG:244520.33:2001JUN22	169	350	forward 3	TM	Non-Cytosolic
512	LG:247556.1:2001JUN22	1	14	forward 1	TM	Non-Cytosolic
512	LG:247556.1:2001JUN22	15	37	forward 1	TM	Transmembrane
512	LG:247556.1:2001JUN22	38	80	forward 1		Cytosolic
512	LG:247556.1:2001JUN22		20	forward 2	TM	
512		21	43	forward 2	TM	Transmembrane
512	LG:247556.1:2001JUN22	44	52	forward 2	TM	Non-Cytosolic
512	LG:247556.1:2001JUN22	53	75	forward 2	TM	Transmembrane
512	LG:247556.1:2001JUN22	76	80	forward 2	TM	Cytosolic
513	LG:247792.5:2001JUN22	1	472	forward 3	TM	Non-Cytosolic
513	LG:247792.5:2001JUN22	473	495	forward 3	TM	Transmembrane
513	LG:247792.5:2001JUN22	496	640	forward 3	TM	Cytosolic
514	LG:253580.6:2001JUN22	1	687	forward 1	TM	Non-Cytosolic
514	LG:253580.6:2001JUN22	688	710	forward 1	TM	Transmembrane
514	LG:253580.6:2001JUN22	711	729	forward 1	TM	Cytosolic
514	LG:253580.6:2001JUN22	730	752	forward 1	TM	Transmembrane
514	LG:253580.6:2001JUN22	753	766	forward 1	TM	Non-Cytosolic
514	LG:253580.6:2001JUN22	767	789	forward 1	TM	Transmembrane
514	LG:253580.6:2001JUN22	790	801	forward 1	TM	Cytosolic
514	LG:253580.6:2001JUN22	802	824	forward 1	TM	Transmembrane
514	LG:253580.6:2001JUN22	825	1245	forward 1	TM	Non-Cytosolic
514	LG:253580.6:2001JUN22	1246	1268	forward 1	TM	Transmembrane
514	LG:253580.6:2001JUN22	1269	1390	forward 1	TM	Cytosolic
514	LG:253580.6:2001JUN22	1	213	forward 2	TM	Non-Cytosolic
514	LG:253580.6:2001JUN22	214	236	forward 2	TM	Transmembrane
514	LG:253580.6:2001JUN22	237	296	forward 2	TM	Cytosolic
514	LG:253580.6:2001JUN22	297	319	forward 2	TM	Transmembrane
514	LG:253580.6:2001JUN22	320	348	forward 2	TM	Non-Cytosolic
514	LG:253580.6:2001JUN22	349	371	forward 2	TM	Transmembrane
514	LG:253580.6:2001JUN22	372	377	forward 2	TM	Cytosolic
514	LG:253580.6:2001JUN22	378	395	forward 2	TM	Transmembrane
514	LG:253580.6:2001JUN22	396	399	forward 2	TM	Non-Cytosolic
514	LG:253580.6:2001JUN22	400	422	forward 2	TM	Transmembrane
514	LG:253580.6:2001JUN22	423	444	forward 2	TM	Cytosolic
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		TABI	Æ 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
514	LG:253580.6:2001JUN22	445	467	forward 2	TM	Transmembrane
514	LG:253580.6:2001JUN22	468	578	forward 2	TM	Non-Cytosolic
514	LG:253580.6:2001JUN22	579	601	forward 2	TM	Transmembrane
514	LG:253580.6:2001JUN22	602	613	forward 2	TM	Cytosolic
514	LG:253580.6:2001JUN22	614	636	forward 2	TM	Transmembrane
514	LG:253580.6:2001JUN22	637	694	forward 2	TM	Non-Cytosolic
514	LG:253580.6:2001JUN22	695	717	forward 2	TM	Transmembrane
514	LG:253580.6:2001JUN22	718	729	forward 2	TM	Cytosolic
514	LG:253580.6:2001JUN22	730	749	forward 2	TM	Transmembrane
514	LG:253580.6:2001JUN22	750	763	forward 2	TM	Non-Cytosolic
514	LG:253580.6:2001JUN22	764	784	forward 2	TM	Transmembrane
514	LG:253580.6:2001JUN22	785	857	forward 2	TM	Cytosolic
514	LG:253580.6:2001JUN22	858	880	forward 2	TM	Transmembrane
514	LG:253580.6:2001JUN22	881	1390	forward 2	TM	Non-Cytosolic
514	LG:253580.6:2001JUN22	1	112	forward 3	TM	Cytosolic
514	LG:253580.6:2001JUN22	113	135	forward 3	TM	Transmembrane
514	LG:253580.6:2001JUN22	136	211	forward 3	TM	Non-Cytosolic
514	LG:253580.6:2001JUN22	212	229	forward 3	TM	Transmembrane
514	LG:253580.6:2001JUN22	230	298	forward 3	TM	Cytosolic
514	LG:253580.6:2001JUN22	299	321	forward 3	TM	Transmembrane
514	LG:253580.6:2001JUN22	322	324	forward 3	TM	Non-Cytosolic
514	LG:253580.6:2001JUN22	325	342	forward 3	TM	Transmembrane
514	LG:253580.6:2001JUN22	343	348	forward 3	TM	Cytosolic
. 514	LG:253580.6:2001JUN22	349	371	forward 3	• • •	Transmembrane
514	LG:253580.6:2001JUN22	372	380	forward 3	TM	Non-Cytosolic
514	LG:253580.6:2001JUN22	381	403	forward 3	TM	Transmembrane
514	LG:253580.6:2001JUN22	404	441	forward 3	TM	Cytosolic
514	LG:253580.6:2001JUN22	442	464	forward 3	TM	Transmembrane
514	LG:253580.6:2001JUN22	465	577	forward 3	TM	Non-Cytosolic
514	LG:253580.6:2001JUN22	578	600	forward 3	TM	Transmembrane
514	LG:253580.6:2001JUN22	601	606	forward 3	TM	Cytosolic
514	LG:253580.6:2001JUN22	607	629	forward 3	TM	Transmembrane
514	LG:253580.6:2001JUN22	630	741	forward 3	TM	Non-Cytosolic Transmembrane
514	LG:253580.6:2001JUN22	742	764 815	forward 3	TM	
514	LG:253580.6:2001JUN22 LG:253580.6:2001JUN22	765	838	forward 3 forward 3	TM TM	Cytosolic Transmembrane
514		816 839	857	forward 3	TM	Non-Cytosolic
514 514	LG:253580.6:2001JUN22 LG:253580.6:2001JUN22	858	880	forward 3	TM	Transmembrane
	LG:253580.6:2001JUN22	881	1016	forward 3	TM	Cytosolic
514 514	LG:253580.6:2001JUN22	1017	1039	forward 3	TM	Transmembrane
514	LG:253580.6:2001JUN22	1040	1390	forward 3	TM	Non-Cytosolic
515	LG:291759.5:2001JUN22	1040	119	forward 1	TM	Cytosolic
515	LG:291759.5:2001JUN22	120	139	forward 1	TM	Transmembrane
515	LG:291759.5:2001JUN22	140	175	forward 1	TM	Non-Cytosolic
515	LG:291759.5:2001JUN22	176	198	forward 1	TM	Transmembrane
515	LG:291759.5:2001JUN22	199	202	forward 1	TM	Cytosolic
515	LG:291759.5:2001JUN22	203	225	forward 1	TM	Transmembrane
515	LG:291759.5:2001JUN22	226	588	forward 1	TM	Non-Cytosolic
516	LG:298226.1:2001JUN22	1	9	forward 1	TM	Non-Cytosolic
516	LG:298226.1:2001JUN22	10	32	forward 1	TM	Transmembrane
516	LG:298226.1:2001JUN22	33	65	forward 1	TM	Cytosolic
516	LG:298226.1:2001JUN22	66	88	forward 1	TM	Transmembrane
516	LG:298226.1:2001JUN22	89	97	forward 1	TM	Non-Cytosolic
516	LG:298226.1:2001JUN22	98	120	forward 1	TM	Transmembrane
3		232				

		TABI	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
516	LG:298226.1:2001JUN22	121	132	forward 1	TM	Cytosolic
516	LG:298226.1:2001JUN22	133	155	forward 1	TM	Transmembrane
516	LG:298226.1:2001JUN22	156	192	forward 1	TM	Non-Cytosolic
516	LG:298226.1:2001JUN22	193	212	forward 1	TM	Transmembrane
516	LG:298226.1:2001JUN22	213	362	forward 1	TM	Cytosolic
516	LG:298226.1:2001JUN22	363	385	forward 1	TM	Transmembrane
516	LG:298226.1:2001JUN22	386	386	forward 1	TM	Non-Cytosolic
516	LG:298226.1:2001JUN22	1	4	forward 2	TM	Non-Cytosolic
516	LG:298226.1:2001JUN22	5	27	forward 2	TM	Transmembrane
516	LG:298226.1:2001JUN22	28	130	forward 2	TM	Cytosolic
516	LG:298226.1:2001JUN22	131	153	forward 2	TM	Transmembrane
516	LG:298226.1:2001JUN22	154	385	forward 2	TM	Non-Cytosolic
516	LG:298226.1:2001JUN22	1	50	forward 3	TM	Non-Cytosolic
516	LG:298226.1:2001JUN22	51	73	forward 3	TM	Transmembrane
516	LG:298226.1:2001JUN22	74	132	forward 3	TM	Cytosolic
516	LG:298226.1:2001JUN22	133	155	forward 3	TM	Transmembrane
516	LG:298226.1:2001JUN22	156	169	forward 3	TM	Non-Cytosolic
516	LG:298226.1:2001JUN22	170	192	forward 3	TM	Transmembrane
516	LG:298226.1:2001JUN22	193	385	forward 3	TM	Cytosolic
517	LG:306342.1:2001JUN22	1	12	forward 2	TM	Cytosolic
517	LG:306342.1:2001JUN22	13	35	forward 2	TM	Transmembrane
517	LG:306342.1:2001JUN22	36	56	forward 2	TM	Non-Cytosolic
517	LG:306342.1:2001JUN22	57	79	forward 2	TM	Transmembrane
517	LG:306342.1:2001JUN22	80	234	forward 2		Cytosolic
517	LG:306342.1:2001JUN22	235	257	forward 2	TM	Transmembrane
517	LG:306342.1:2001JUN22	258	314	forward 2	TM	Non-Cytosolic
518	LG:327144.5:2001JUN22	1	578	forward 1	TM -	Non-Cytosolic
518	LG:327144.5:2001JUN22	579	601	forward 1	TM	Transmembrane
. 518	LG:327144.5:2001JUN22	.602	645	forward 1	TM	Cytosolic
518	LG:327144.5:2001JUN22	646	668	forward 1	TM	Transmembrane
518	LG:327144.5:2001JUN22	669	903	forward 1	TM	Non-Cytosolic
518	LG:327144.5:2001JUN22	1	578		TM	Non-Cytosolic
518	LG:327144.5:2001JUN22	579	601	forward 3	TM	Transmembrane
518	LG:327144.5:2001JUN22	602	902	forward 3	TM	Cytosolic
519	LG:331499.8:2001JUN22		<sub>Ø</sub> 599	forward 1	TM	Non-Cytosolic
519	LG:331499.8:2001JUN22	600	622	forward 1	TM	Transmembrane
519	LG:331499.8:2001JUN22	623	807	forward 1	TM	Cytosolic
520	LG:331582.12:2001JUN22	1	61	forward 1	TM	Cytosolic
520	LG:331582.12:2001JUN22	62	84	forward 1	TM	Transmembrane
520	LG:331582.12:2001JUN22	85	743	forward 1	TM	Non-Cytosolic
520	LG:331582.12:2001JUN22	744	766	forward 1	TM	Transmembrane
520	LG:331582.12:2001JUN22	767	778	forward 1	TM	Cytosolic
520	LG:331582.12:2001JUN22	779	801	forward 1	TM	Transmembrane
520	LG:331582.12:2001JUN22	802	845	forward 1	TM	Non-Cytosolic
520	LG:331582.12:2001JUN22	1	792	forward 2	TM	Non-Cytosolic
520	LG:331582.12:2001JUN22	793	815	forward 2	TM	Transmembrane
520	LG:331582.12:2001JUN22	816	845	forward 2	TM	Cytosolic
521	LG:333017.12:2001JUN22	1	57	forward 3	TM	Cytosolic
521	LG:333017.12:2001JUN22	58	80	forward 3	TM	Transmembrane
521	LG:333017.12:2001JUN22	81	185	forward 3	TM	Non-Cytosolic
522	LG:334438.8:2001JUN22	1	49	forward 1	TM	Non-Cytosolic
522	LG:334438.8:2001JUN22	50	72	forward 1	TM	Transmembrane
522	LG:334438.8:2001JUN22	73	136	forward 1	TM	Cytosolic
522	LG:334438.8:2001JUN22	137	156	forward 1	TM	Transmembrane
JEE	EG.JJ77J0.0.2001J01122	233		101.77414 1	4.474	

		TABI	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
522	LG:334438.8:2001JUN22	157	160	forward 1	TM	Non-Cytosolic
522	LG:334438.8:2001JUN22	161	183	forward 1	TM	Transmembrane
522	LG:334438.8:2001JUN22	184	251	forward 1	TM	Cytosolic
522	LG:334438.8:2001JUN22	252	269	forward 1	TM	Transmembrane
522	LG:334438.8:2001JUN22	270	517	forward 1	TM	Non-Cytosolic
522	LG:334438.8:2001JUN22	518	540	forward 1	TM	Transmembrane
522	LG:334438.8:2001JUN22	541	562	forward 1	TM	Cytosolic
522	LG:334438.8:2001JUN22	1	54	forward 2	TM	Non-Cytosolic
522	LG:334438.8:2001JUN22	55	77	forward 2	TM	Transmembrane
. 522	LG:334438.8:2001JUN22	78	144	forward 2	TM	Cytosolic
522	LG:334438.8:2001JUN22	145	167	forward 2	TM	Transmembrane
522	LG:334438.8:2001JUN22	168	226	forward 2	TM	Non-Cytosolic
522	LG:334438.8:2001JUN22	227	249	forward 2	TM	Transmembrane
522	LG:334438.8:2001JUN22	250	495	forward 2	TM	Cytosolic
522	LG:334438.8:2001JUN22	496	518	forward 2	TM	Transmembrane
522	LG:334438.8:2001JUN22	519	561	forward 2	TM	Non-Cytosolic
522	LG:334438.8:2001JUN22	1	56	forward 3	TM	Cytosolic
522	LG:334438.8:2001JUN22	57	79	forward 3	TM	Transmembrane
522	LG:334438.8:2001JUN22	80	561	forward 3	TM	Non-Cytosolic
523	LG:337835.7:2001JUN22	1	38	forward 3	TM	Cytosolic
523	LG:337835.7:2001JUN22	39	61	forward 3	TM	Transmembrane
523	LG:337835.7:2001JUN22	62	373	forward 3	TM	Non-Cytosolic
524	LG:346536.12:2001JUN22	1	603	forward 1	TM	Non-Cytosolic
524 👵	LG:346536.12:2001JUN22	604	626	forward 1	TM	Transmembrane
524	LG:346536.12:2001JUN22	627	627.	forward 1	TM	Cytosolic
524	LG:346536.12:2001JUN22	628	647	forward 1	TM	Transmembrane
524	LG:346536.12:2001JUN22	648	1188	forward 1	TM	Non-Cytosolic
524	LG:346536.12:2001JUN22	1	1021	forward 3	TM	Non-Cytosolic
524	LG:346536.12:2001JUN22	1022	1044	forward 3	TM	Transmembrane
524	LG:346536.12:2001JUN22	1045	1188	forward 3	TM	Cytosolic
525	LG:348117.5:2001JUN22	1	135	forward 1	TM	Non-Cytosolic
525	LG:348117.5:2001JUN22	136	155	forward 1	TM	Transmembrane
525	LG:348117.5:2001JUN22	156	274	forward 1	TM	Cytosolic
525 525	LG:348117.5:2001JUN22	275	297	forward 1	TM	Transmembrane
525 525	LG:348117.5:2001JUN22	298	654	forward 1	TM	Non-Cytosolic
525 525	LG:348117.5:2001JUN22	1	251	forward 2	TM	Non-Cytosolic Transmembrane
525 525	LG:348117.5:2001JUN22	252 275	274 285	forward 2 forward 2	TM TM	
525 525	LG:348117.5:2001JUN22 LG:348117.5:2001JUN22	286	308	forward 2	TM	Cytosolic Transmembrane
525 525	LG:348117.5:2001JUN22 LG:348117.5:2001JUN22	309	653	forward 2	TM	Non-Cytosolic
525		1	37	forward 3	TM	Non-Cytosolic
525 525	LG:348117.5:2001JUN22 LG:348117.5:2001JUN22	38	60	forward 3	TM	Transmembrane
525 525	LG:348117.5:2001JUN22	61	296	forward 3	TM	Cytosolic
525	LG:348117.5:2001JUN22	297	319	forward 3	TM	Transmembrane
525 525	LG:348117.5:2001JUN22	320	653	forward 3	TM	Non-Cytosolic
526	LG:350407.22:2001JUN22	1	70	forward 1	TM	Cytosolic
526	LG:350407.22:2001JUN22	71	93	forward 1	TM	Transmembrane
526	LG:350407.22:2001JUN22	94	102	forward 1	TM	Non-Cytosolic
526	LG:350407.22:2001JUN22	103	125	forward 1	TM	Transmembrane
526	LG:350407.22:2001JUN22	126	144	forward 1	TM	Cytosolic
526	LG:350407.22:2001JUN22	1	85	forward 2	TM	Non-Cytosolic
526	LG:350407.22:2001JUN22	86	108	forward 2	TM	Transmembrane
526	LG:350407.22:2001JUN22	109	144	forward 2	TM	Cytosolic
527	LG:373219.13:2001JUN22	1	23	forward 1	TM	Non-Cytosolic
•		234		_		•

#### TABLE 2 Domain Type Stop Frame Topology SEQ D NO: Template ID Start 46 527 LG:373219.13:2001JUN22 24 forward 1 TM Transmembrane LG:373219.13:2001JUN22 47 100 forward 1 TM Cytosolic 527 LG:373219.13:2001JUN22 527 101 120 forward 1 TM Transmembrane 527 LG:373219.13:2001JUN22 121 244 forward 1 TM Non-Cytosolic 527 LG:373219.13:2001JUN22 245 267 forward 1 TM Transmembrane 527 LG:373219.13:2001JUN22 268 353 forward 1 TM Cytosolic 354 376 forward 1 TM Transmembrane 527 LG:373219.13:2001JUN22 377 413 forward 1 TM Non-Cytosolic LG:373219.13:2001JUN22 527 414 436 forward 1 TM Transmembrane 527 LG:373219.13:2001JUN22 LG:373219.13:2001JUN22 437 461 forward 1 TM Cytosolic 527 527 LG:373219.13:2001JUN22 462 484 forward 1 TM Transmembrane 527 LG:373219.13:2001JUN22 485 986 forward 1 TM Non-Cytosolic 527 19 forward 2 TM Non-Cytosolic LG:373219.13:2001JUN22 1 527 LG:373219.13:2001JUN22 20 42 forward 2 TM Transmembrane 527 LG:373219.13:2001JUN22 43 229 forward 2 TM Cytosolic 527 LG:373219.13:2001JUN22 230 252 forward 2 TM Transmembrane 253 280 forward 2 Non-Cytosolic 527 LG:373219.13:2001JUN22 TM 303 Transmembrane 527 LG:373219.13:2001JUN22 281 forward 2 TM 527 LG:373219.13:2001JUN22 304 440 forward 2 TM Cytosolic 441 460 forward 2 TM Transmembrane 527 LG:373219.13:2001JUN22 527 LG:373219.13:2001JUN22 461 464 forward 2 TM Non-Cytosolic 465 484 forward 2 TM Transmembrane 527 LG:373219.13:2001JUN22 485 636 forward 2 TM Cytosolic LG:373219.13:2001JUN22 527 659 forward 2 TM Transmembrane 527 LG:373219.13:2001JUN22 637 527 LG:373219.13:2001JUN22 660 703 forward 2 TM Non-Cytosolic 704 723 forward 2 TM Transmembrane 527 LG:373219.13:2001JUN22 735 Cytosolic 527 LG:373219.13:2001JUN22 724 forward 2 TM 736 758 forward 2 TM Transmembrane 527 LG:373219.13:2001JUN22 LG:373219.13:2001JUN22 759 875 forward 2 TM Non-Cytosolic 527 876 898 forward 2 TM Transmembrane 527 LG:373219.13:2001JUN22 527 LG:373219.13:2001JUN22 899 910 forward 2 TM Cytosolic 527 LG:373219.13:2001JUN22 911 933 forward 2 TM Transmembrane 986 forward 2 Non-Cytosolic 527 LG:373219.13:2001JUN22 934 TM 527 LG:373219.13:2001JUN22 19 forward 3 TM Cytosolic 1 20 39 forward 3 TM Transmembrane 527 LG:373219.13:2001JUN22 43 Non-Cytosolic 527 40 forward 3 TM LG:373219.13:2001JUN22 Transmembrane 527 LG:373219.13:2001JUN22 44 66 forward 3 TM 527 67 223 forward 3 TM Cytosolic LG:373219.13:2001JUN22 Transmembrane 527 LG:373219.13:2001JUN22 224 246 forward 3 TM 247 275 forward 3 TM Non-Cytosolic 527 LG:373219.13:2001JUN22 298 TM Transmembrane 276 forward 3 527 LG:373219:13:2001JUN22 TM 527 LG:373219.13:2001JUN22 299 327 forward 3 Cytosolic 527 LG:373219.13:2001JUN22 328 347 forward 3 TM Transmembrane 361 TM Non-Cytosolic 527 LG:373219.13:2001JUN22 348 forward 3 362 384 forward 3 TM Transmembrane 527 LG:373219.13:2001JUN22 385 404 forward 3 TM Cytosolic 527 LG:373219.13:2001JUN22 422 TM Transmembrane 527 LG:373219.13:2001JUN22 405 forward 3 527 LG:373219.13:2001JUN22 423 426 forward 3 TM Non-Cytosolic 527 LG:373219.13:2001JUN22 427 449 forward 3 TM Transmembrane 527 LG:373219.13:2001JUN22 450 461 forward 3 TM Cytosolic 527 LG:373219.13:2001JUN22 462 484 forward 3 TM Transmembrane Non-Cytosolic 527 LG:373219.13:2001JUN22 485 488 forward 3 TM 527 LG:373219.13:2001JUN22 489 511 forward 3 TM Transmembrane

512 235 515

forward 3

ΤM

527

LG:373219.13:2001JUN22

Cytosolic

SEQ D NO:			TABL	.E 2			
S27	SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
S27		•	516	•	forward 3	TM	•
Cytosolic   Transmembrane   Cytosolic   Cytosolic			539	577	forward 3	TM	Non-Cytosolic
S27			578	600	forward 3	TM	Transmembrane
527         LG:373219.13:2001UN22         710         732         forward 3         TM         Transmembrane           527         LG:373219.13:2001UN22         764         forward 3         TM         Non-Cytosolic           527         LG:373219.13:2001UN22         765         873         forward 3         TM         Cytosolic           527         LG:373219.13:2001UN22         874         891         forward 3         TM         Transmembrane           527         LG:373219.13:2001UN22         892         910         forward 3         TM         Non-Cytosolic           527         LG:373219.13:2001UN22         914         935         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001UN22         914         935         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001UN22         910         913         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001UN22         917         917         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001UN22         917         917         forward 3         TM         Cytosolic           528         LG:375048.15:2001UN22         13		LG:373219.13:2001JUN22	601	709	forward 3	TM	Cytosolic
527         LG:373219.13:2001JUN22         733         741         forward 3         TM         Non-Cytosolic           527         LG:373219.13:2001JUN22         742         764         forward 3         TM         Transmembrane           527         LG:373219.13:2001JUN22         874         891         forward 3         TM         Cytosolic           527         LG:373219.13:2001JUN22         892         910         forward 3         TM         Non-Cytosolic           527         LG:373219.13:2001JUN22         892         910         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         944         985         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         910         913         forward 2         TM         Cytosolic           528         LG:375048.15:2001JUN22         914         936         forward 2         TM         Cytosolic           528         LG:375048.15:2001JUN22         937         1309         forward 2         TM         Transmembrane           528         LG:375048.15:2001JUN22         117         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22			710	732	forward 3	· TM	Transmembrane
527         LG:373219.13:2001UN22         742         764         forward 3         TM         Transmembrane           527         LG:373219.13:2001UN22         874         891         forward 3         TM         Typosolic           527         LG:373219.13:2001UN22         892         910         forward 3         TM         Non-Cytosolic           527         LG:373219.13:2001UN22         911         933         forward 3         TM         Non-Cytosolic           528         LG:373219.13:2001UN22         919         933         forward 3         TM         Cytosolic           528         LG:375048.15:2001UN22         919         913         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001UN22         910         913         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001UN22         947         936         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001UN22         937         1309         forward 3         TM         Cytosolic           528         LG:375048.15:2001UN22         136         175         forward 3         TM         Cytosolic           528         LG:375048.15:2001UN22				741	forward 3	TM	Non-Cytosolic
527         LG:373219.13:2001UN22         765         873         forward 3         TM         Cytosolic           527         LG:373219.13:2001UN22         874         891         forward 3         TM         Non-Cytosolic           527         LG:373219.13:2001UN22         914         934         985         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001UN22         934         985         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001UN22         990         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001UN22         914         936         forward 2         TM         Tonsmembrane           528         LG:375048.15:2001UN22         914         936         forward 2         TM         Tonsmembrane           528         LG:375048.15:2001UN22         937         1309         forward 2         TM         Tonsmembrane           528         LG:375048.15:2001UN22         18         135         forward 3         TM         Transmembrane           528         LG:375048.15:2001UN22         176         198         forward 3         TM         Transmembrane           528         LG:375048.15:2001UN			742	764	forward 3	TM	
527         LG:373219.13:2001JUN22         874         891         forward 3         TM         Transmembrane           527         LG:373219.13:2001JUN22         910         forward 3         TM         Non-Cytosolic           527         LG:373219.13:2001JUN22         91         933         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         1         891         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         910         91         36 forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         910         91         36 forward 2         TM         Transmembrane           528         LG:375048.15:2001JUN22         914         936         forward 2         TM         Transmembrane           528         LG:375048.15:2001JUN22         11         117         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         136         175         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         136         137         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22			765	873	forward 3	TM	Cytosolic
527         LG:373219.13:2001JUN22         891         910         forward 3         TM         Non-Cytosolic           527         LG:373219.13:2001JUN22         91         933         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         94         985         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         910         913         forward 2         TM         Cytosolic           528         LG:375048.15:2001JUN22         914         936         forward 2         TM         Cytosolic           528         LG:375048.15:2001JUN22         91         913         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         1         117         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         136         175         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         136         175         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         293         315         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22<		LG:373219.13:2001JUN22	874	891	forward 3	TM	Transmembrane
527         LG:373219.13:2001JUN22         911         933         forward 3         TM         Transmembrane           527         LG:373219.13:2001JUN22         1         891         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         892         909         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         910         913         forward 2         TM         Transmembrane           528         LG:375048.15:2001JUN22         914         936         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         11         117         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         136         175         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         136         175         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         136         137         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         293         315         forward 3         TM         Non-Cytosolic           529         LG:375048			892	910	forward 3	TM	Non-Cytosolic
527         LG:373219.13:2001JUN22         934         985         forward 2         TM         Cytosolic           528         LG:375048.15:2001JUN22         892         909         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         910         913         forward 2         TM         Cytosolic           528         LG:375048.15:2001JUN22         937         1309         forward 2         TM         Transmembrane           528         LG:375048.15:2001JUN22         937         1309         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         1117         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         136         175         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         176         198         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         199         329         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         3315         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         335			911	933	forward 3	TM	
528         LG:375048.15:2001JUN22         1         891         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         910         909         forward 2         TM         Transmembrane           528         LG:375048.15:2001JUN22         914         936         forward 2         TM         Transmembrane           528         LG:375048.15:2001JUN22         937         1309         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         118         135         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         136         175         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         136         175         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         199         292         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         293         315         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         336         334         forward 3         TM         Transmembrane           528         LG:			934	985	forward 3	TM	Cytosolic
528         LG:375048.15:2001JUN22         892         909         forward 2         TM         Transmembrane           528         LG:375048.15:2001JUN22         910         913         forward 2         TM         Cytosolic           528         LG:375048.15:2001JUN22         937         1309         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         1         117         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         18         135         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         136         175         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         199         292         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         293         315         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         336         334         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         335         357         forward 3         TM         Transmembrane           529         LG:400144.3:2001			1 .	891	forward 2	TM	
528         LG:375048.15:2001JUN22         910         913         forward 2         TM         Cytosolic           528         LG:375048.15:2001JUN22         937         1309         forward 2         TM         Transmembrane           528         LG:375048.15:2001JUN22         1         117         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         118         135         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         136         175         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         199         292         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         293         315         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         335         357         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         335         357         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         358         403         forward 3         TM         Cytosolic           528         LG:375048.15:2001JU			892	909	forward 2	TM	
528         LG:375048.15:2001JUN22         914         936         forward 2         TM         Transmembrane           528         LG:375048.15:2001JUN22         937         1309         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         118         135         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         136         175         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         176         198         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         293         315         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         336         334         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         334         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         335         357         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         358         403         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22			910	913	forward 2	TM	Cytosolic
528         LG:375048.15:2001JUN22         937         1309         forward 2         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         1         117         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         118         135         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         176         198         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         199         292         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         316         334         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         335         357         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         358         403         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         358         403         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         404         423         forward 3         TM         Cytosolic           529         LG:400114.3:200			914		forward 2	TM	-
528         LG:375048.15:2001JUN22         1         117         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         118         135         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         196         198         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         199         292         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         293         315         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         316         334         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         335         357         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         358         403         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         340         forward 3         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         424         1309         forward 3         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         54			937	1309	forward 2	TM	Non-Cytosolic
528         LG:375048.15:2001JUN22         118         135         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         176         198         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         199         292         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         293         315         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         336         334         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         358         403         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         358         403         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         404         423         forward 3         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         424         1309         forward 3         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         424         1309         forward 1         TM         Cytosolic           529         LG:400114.3:2001JU		LG:375048.15:2001JUN22	1	117	forward 3	TM	
528         LG:375048.15:2001JUN22         136         175         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         199         292         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         293         315         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         336         334         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         335         357         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         358         403         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         404         423         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         404         423         forward 3         TM         Cytosolic           529         LG:40014.3:2001JUN22         1541         forward 3         TM         Cytosolic           529         LG:400114.3:2001JUN22         1542         564         forward 1         TM         Cytosolic           529         LG:400114.3:2001JUN22         565 </td <td></td> <td></td> <td>118</td> <td>135</td> <td>forward 3</td> <td>TM</td> <td>Transmembrane</td>			118	135	forward 3	TM	Transmembrane
528         LG:375048.15:2001JUN22         176         198         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         199         292         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         316         334         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         335         357         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         358         403         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         404         423         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         404         423         forward 3         TM         Cytosolic           529         LG:400114.3:2001JUN22         1         541         forward 3         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         1         541         forward 1         TM         Cytosolic           529         LG:400114.3:2001JUN22         564         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         588 <t< td=""><td></td><td>LG:375048.15:2001JUN22</td><td>136</td><td>175</td><td>forward 3</td><td>TM</td><td>Non-Cytosolic</td></t<>		LG:375048.15:2001JUN22	136	175	forward 3	TM	Non-Cytosolic
528         LG:375048.15:2001JUN22         199         292         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         293         315         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         336         334         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         358         403         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         404         423         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         404         423         forward 3         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         424         1309         forward 1         TM         Cytosolic           529         LG:400114.3:2001JUN22         542         564         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         598         617         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         598         617         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22			176	198	forward 3	TM	Transmembrane
528         LG:375048.15:2001JUN22         293         315         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         316         334         forward 3         TM         Non-Cytosolic           528         LG:375048.15:2001JUN22         358         403         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         404         423         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         424         1309         forward 3         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         424         1309         forward 1         TM         Cytosolic           529         LG:400114.3:2001JUN22         542         564         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         565         597         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         588         617         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         839         858         forward 1         TM         Transmembrane           529         LG:400114.3:2001J		LG:375048.15:2001JUN22	199	292	forward 3	TM	Cytosolic
528         LG:375048.15:2001JUN22         335         357         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         404         423         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         404         423         forward 3         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         424         1309         forward 1         TM         Cytosolic           529         LG:400114.3:2001JUN22         542         564         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         565         597         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         598         617         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         618         838         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         859         909         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         910         932         forward 1         TM         Non-Cytosolic           530         LG:400114.3:2001		LG:375048.15:2001JUN22	293	315	forward 3	TM	Transmembrane
528         LG:375048.15:2001JUN22         358         403         forward 3         TM         Cytosolic           528         LG:375048.15:2001JUN22         404         423         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         424         1309         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         542         564         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         565         597         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         598         617         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         618         838         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         859         858         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         859         909         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         933         1083         forward 1         TM         Non-Cytosolic           530         LG:400114.3	528	LG:375048.15:2001JUN22	: 316	334	forward 3	TM	Non-Cytosolic
528         LG:375048.15:2001JUN22         404         423         forward 3         TM         Transmembrane           528         LG:375048.15:2001JUN22         424         1309         forward 3         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         1         541         forward 1         TM         Cytosolic           529         LG:400114.3:2001JUN22         565         564         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         565         597         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         598         617         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         618         838         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         859         909         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         859         909         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         931         1083         forward 1         TM         Cytosolic           530         LG:400652.1:2001JU	528	LG:375048.15:2001JUN22	: 335	357	forward 3	TM	Transmembrane
528         LG:375048.15:2001JUN22         424         1309         forward 3         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         1         541         forward 1         TM         Cytosolic           529         LG:400114.3:2001JUN22         542         564         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         598         617         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         618         838         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         839         858         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         859         909         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         910         932         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         931         1083         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         932         forward 1         TM         Cytosolic           529         LG:400114.3:2001JUN22         1	528	LG:375048.15:2001JUN22	··· 358	403	forward 3	TM	
529         LG:400114.3:2001JUN22         1         541         forward 1         TM         Cytosolic           529         LG:400114.3:2001JUN22         542         564         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         565         597         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         618         838         forward 1         TM         Cytosolic           529         LG:400114.3:2001JUN22         839         858         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         859         909         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         910         932         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         933         1083         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1         1115         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1139         1264         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22	528	LG:375048.15:2001JUN22	404	423	forward 3	TM	Transmembrane
529         LG:400114.3:2001JUN22         542         564         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         565         597         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         618         838         forward 1         TM         Cytosolic           529         LG:400114.3:2001JUN22         839         858         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         859         909         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         910         932         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         910         932         forward 1         TM         Cytosolic           529         LG:400114.3:2001JUN22         933         1083         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1         1115         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1265         1287         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22<	528	LG:375048.15:2001JUN22	424	1309	forward 3	TM	Non-Cytosolic
529         LG:400114.3:2001JUN22         565         597         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         598         617         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         618         838         forward 1         TM         Cytosolic           529         LG:400114.3:2001JUN22         859         909         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         910         932         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         910         932         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         933         1083         forward 1         TM         Cytosolic           529         LG:400114.3:2001JUN22         933         1083         forward 1         TM         Cytosolic           529         LG:400652.1:2001JUN22         1116         1138         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1128         1301         forward 1         TM         Transmembrane           530         LG:400652.1:2001JU	529	LG:400114.3:2001JUN22	1	541	forward 1	TM	Cytosolic
529         LG:400114.3:2001JUN22         598         617         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         618         838         forward 1         TM         Cytosolic           529         LG:400114.3:2001JUN22         839         858         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         910         932         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         933         1083         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1         1115         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1116         1138         forward 1         TM         Transmembrane           530         LG:400652.1:2001JUN22         1139         1264         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1265         1287         forward 1         TM         Transmembrane           530         LG:400652.1:2001JUN22         1288         1301         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001	529	LG:400114.3:2001JUN22	542	564	forward 1	TM	
529         LG:400114.3:2001JUN22         618         838         forward 1         TM         Cytosolic           529         LG:400114.3:2001JUN22         839         858         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         859         909         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         910         932         forward 1         TM         Cytosolic           530         LG:400114.3:2001JUN22         933         1083         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1         1115         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1139         1264         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1265         1287         forward 1         TM         Transmembrane           530         LG:400652.1:2001JUN22         1288         1301         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1302         1324         forward 1         TM         Transmembrane           530         LG:400652.1:2001	529	LG:400114.3:2001JUN22	565		forward 1		=
529         LG:400114.3:2001JUN22         839         858         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         859         909         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         910         932         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         933         1083         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1         1115         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1116         1138         forward 1         TM         Transmembrane           530         LG:400652.1:2001JUN22         1265         1287         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1288         1301         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1325         1351         forward 1         TM         Transmembrane           530         LG:400652.1:2001JUN22         1325         1351         forward 2         TM         Non-Cytosolic           530         LG:400652.	529	LG:400114.3:2001JUN22	598				
529         LG:400114.3:2001JUN22         859         909         forward 1         TM         Non-Cytosolic           529         LG:400114.3:2001JUN22         910         932         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         933         1083         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1         1115         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1139         1264         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1265         1287         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1288         1301         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1302         1324         forward 1         TM         Transmembrane           530         LG:400652.1:2001JUN22         1325         1351         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1         494         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN2	529	LG:400114.3:2001JUN22	618		forward 1	TM	
529         LG:400114.3:2001JUN22         910         932         forward 1         TM         Transmembrane           529         LG:400114.3:2001JUN22         933         1083         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1         1115         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1139         1264         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1265         1287         forward 1         TM         Transmembrane           530         LG:400652.1:2001JUN22         1288         1301         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1302         1324         forward 1         TM         Transmembrane           530         LG:400652.1:2001JUN22         1325         1351         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1         494         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         518         613         forward 2         TM         Transmembrane           530         LG:400652.1:2001	529	LG:400114.3:2001JUN22	839		forward 1		Transmembrane
529         LG:400114.3:2001JUN22         933         1083         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1         1115         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1116         1138         forward 1         TM         Transmembrane           530         LG:400652.1:2001JUN22         1265         1287         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1288         1301         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1302         1324         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1325         1351         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1325         1351         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1         494         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         518         613         forward 2         TM         Transmembrane           530         LG:400652.1:20	529				forward 1		
530         LG:400652.1:2001JUN22         1         1115         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1116         1138         forward 1         TM         Transmembrane           530         LG:400652.1:2001JUN22         1139         1264         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1288         1301         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1302         1324         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1325         1351         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1325         1351         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1         494         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         518         613         forward 2         TM         Transmembrane           530         LG:400652.1:2001JUN22         614         636         forward 2         TM         Non-Cytosolic           530         LG:400652.1	529						
530         LG:400652.1:2001JUN22         1116         1138         forward 1         TM         Transmembrane           530         LG:400652.1:2001JUN22         1139         1264         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1288         1301         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1302         1324         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1325         1351         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1325         1351         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1         494         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         518         613         forward 2         TM         Cytosolic           530         LG:400652.1:2001JUN22         518         613         forward 2         TM         Transmembrane           530         LG:400652.1:2001JUN22         614         636         forward 2         TM         Non-Cytosolic           530         LG:400652.1:20			933				
530         LG:400652.1:2001JUN22         1139         1264         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1265         1287         forward 1         TM         Transmembrane           530         LG:400652.1:2001JUN22         1288         1301         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1302         1324         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1325         1351         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1         494         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         495         517         forward 2         TM         Transmembrane           530         LG:400652.1:2001JUN22         518         613         forward 2         TM         Cytosolic           530         LG:400652.1:2001JUN22         614         636         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1         1098         forward 3         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22			-				
530         LG:400652.1:2001JUN22         1265         1287         forward 1         TM         Transmembrane           530         LG:400652.1:2001JUN22         1288         1301         forward 1         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1302         1324         forward 1         TM         Transmembrane           530         LG:400652.1:2001JUN22         1325         1351         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1         494         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         495         517         forward 2         TM         Cytosolic           530         LG:400652.1:2001JUN22         518         613         forward 2         TM         Cytosolic           530         LG:400652.1:2001JUN22         614         636         forward 2         TM         Transmembrane           530         LG:400652.1:2001JUN22         637         1350         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1         1098         forward 3         TM         Non-Cytosolic           530         LG:400652.1:2001JU							
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530         LG:400652.1:2001JUN22         1302         1324         forward 1         TM         Transmembrane           530         LG:400652.1:2001JUN22         1325         1351         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1494         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         495         517         forward 2         TM         Cytosolic           530         LG:400652.1:2001JUN22         518         613         forward 2         TM         Cytosolic           530         LG:400652.1:2001JUN22         614         636         forward 2         TM         Transmembrane           530         LG:400652.1:2001JUN22         637         1350         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1098         forward 3         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1099         1116         forward 3         TM         Transmembrane           530         LG:400652.1:2001JUN22         1117         1120         forward 3         TM         Cytosolic           530         LG:400652.1:2001JUN22         1117 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>							
530         LG:400652.1:2001JUN22         1325         1351         forward 1         TM         Cytosolic           530         LG:400652.1:2001JUN22         1         494         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         495         517         forward 2         TM         Transmembrane           530         LG:400652.1:2001JUN22         518         613         forward 2         TM         Cytosolic           530         LG:400652.1:2001JUN22         614         636         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         637         1350         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1         1098         forward 3         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1099         1116         forward 3         TM         Transmembrane           530         LG:400652.1:2001JUN22         1117         1120         forward 3         TM         Cytosolic           530         LG:400652.1:2001JUN22         1117         1120         forward 3         TM         Transmembrane							_
530         LG:400652.1:2001JUN22         1         494         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         495         517         forward 2         TM         Transmembrane           530         LG:400652.1:2001JUN22         518         613         forward 2         TM         Cytosolic           530         LG:400652.1:2001JUN22         614         636         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         637         1350         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1         1098         forward 3         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1099         1116         forward 3         TM         Transmembrane           530         LG:400652.1:2001JUN22         1117         1120         forward 3         TM         Cytosolic           530         LG:400652.1:2001JUN22         1117         1120         forward 3         TM         Transmembrane           530         LG:400652.1:2001JUN22         1121         1143         forward 3         TM         Transmembrane		•					
530         LG:400652.1:2001JUN22         495         517         forward 2         TM         Transmembrane           530         LG:400652.1:2001JUN22         518         613         forward 2         TM         Cytosolic           530         LG:400652.1:2001JUN22         614         636         forward 2         TM         Transmembrane           530         LG:400652.1:2001JUN22         637         1350         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1         1098         forward 3         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1099         1116         forward 3         TM         Transmembrane           530         LG:400652.1:2001JUN22         1117         1120         forward 3         TM         Cytosolic           530         LG:400652.1:2001JUN22         1121         1143         forward 3         TM         Transmembrane							
530         LG:400652.1:2001JUN22         518         613         forward 2         TM         Cytosolic           530         LG:400652.1:2001JUN22         614         636         forward 2         TM         Transmembrane           530         LG:400652.1:2001JUN22         637         1350         forward 2         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1         1098         forward 3         TM         Non-Cytosolic           530         LG:400652.1:2001JUN22         1099         1116         forward 3         TM         Transmembrane           530         LG:400652.1:2001JUN22         1117         1120         forward 3         TM         Cytosolic           530         LG:400652.1:2001JUN22         1121         1143         forward 3         TM         Transmembrane							-
530       LG:400652.1:2001JUN22       614       636       forward 2       TM       Transmembrane         530       LG:400652.1:2001JUN22       637       1350       forward 2       TM       Non-Cytosolic         530       LG:400652.1:2001JUN22       1       1098       forward 3       TM       Non-Cytosolic         530       LG:400652.1:2001JUN22       1099       1116       forward 3       TM       Transmembrane         530       LG:400652.1:2001JUN22       1117       1120       forward 3       TM       Cytosolic         530       LG:400652.1:2001JUN22       1121       1143       forward 3       TM       Transmembrane							
530       LG:400652.1:2001JUN22       637       1350       forward 2       TM       Non-Cytosolic         530       LG:400652.1:2001JUN22       1       1098       forward 3       TM       Non-Cytosolic         530       LG:400652.1:2001JUN22       1099       1116       forward 3       TM       Transmembrane         530       LG:400652.1:2001JUN22       1117       1120       forward 3       TM       Cytosolic         530       LG:400652.1:2001JUN22       1121       1143       forward 3       TM       Transmembrane							•
530       LG:400652.1:2001JUN22       1 1098 forward 3       TM       Non-Cytosolic         530       LG:400652.1:2001JUN22       1099 1116 forward 3       TM       Transmembrane         530       LG:400652.1:2001JUN22       1117 1120 forward 3       TM       Cytosolic         530       LG:400652.1:2001JUN22       1121 1143 forward 3       TM       Transmembrane							
530 LG:400652.1:2001JUN22 1099 1116 forward 3 TM Transmembrane 530 LG:400652.1:2001JUN22 1117 1120 forward 3 TM Cytosolic 530 LG:400652.1:2001JUN22 1121 1143 forward 3 TM Transmembrane							
530 LG:400652.1:2001JUN22 1117 1120 forward 3 TM Cytosolic 530 LG:400652.1:2001JUN22 1121 1143 forward 3 TM Transmembrane							
530 LG:400652.1:2001JUN22 1121 1143 forward 3 TM Transmembrane							
							•
530 1 G-400652 1-2001 U.N.22 1144 1157 torward 3 TM Non-Cutocolic							
236	530	LG:400652.1:2001JUN22	1144 236		forward 3	TM	Non-Cytosolic

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		TABI	.E 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
530	LG:400652.1:2001JUN22	1158	1180	forward 3	TM	Transmembrane
530	LG:400652.1:2001JUN22	1181	1192	forward 3	TM	Cytosolic
530	LG:400652.1:2001JUN22	1193	1215	forward 3	TM	Transmembrane
530	LG:400652.1:2001JUN22	1216	1350	forward 3	TM	Non-Cytosolic
531	LG:401313.10:2001JUN22	1	379	forward 3	TM	Non-Cytosolic
531	LG:401313.10:2001JUN22	380	402	forward 3	TM	Transmembrane
531	LG:401313.10:2001JUN22	403	408	forward 3	TM	Cytosolic
531	LG:401313.10:2001JUN22	409	431	forward 3	TM	Transmembrane
531	LG:401313.10:2001JUN22	432	440	forward 3	TM	Non-Cytosolic
531	LG:401313.10:2001JUN22	441	463	forward 3	TM	Transmembrane
531	LG:401313.10:2001JUN22	464	474	forward 3	TM	Cytosolic
532	LG:406389.1:2001JUN22	1	37	forward 2	TM	Cytosolic
532	LG:406389.1:2001JUN22	38	60	forward 2	TM	Transmembrane
532	LG:406389.1:2001JUN22	61	160	forward 2	TM	Non-Cytosolic
532	LG:406389.1:2001JUN22	161	183	forward 2	TM	Transmembrane
532	LG:406389.1:2001JUN22	184	199	forward 2	TM	Cytosolic
532	LG:406389.1:2001JUN22	200	222	forward 2	TM	Transmembrane
532	LG:406389.1:2001JUN22	223	739	forward 2	TM	Non-Cytosolic
533	LG:406595.2:2001JUN22	1	4	forward 1	TM	Cytosolic
533	LG:406595.2:2001JUN22	5	27	forward 1	TM	Transmembrane
533	LG:406595.2:2001JUN22	28	41	forward 1	TM	Non-Cytosolic
533	LG:406595.2:2001JUN22	42	64	forward 1	TM	Transmembrane
533	LG:406595.2:2001JUN22	65	99	forward 1	TM	Cytosolic
533	LG:406595.2:2001JUN22	100	122	forward 1	TM	Transmembrane
533	LG:406595.2:2001JUN22	123	136	forward 1	TM	Non-Cytosolic
533	LG:406595.2:2001JUN22	137	159	forward 1	TM	Transmembrane
533	LG:406595.2:2001JUN22	160	170	forward 1	TM	Cytosolic
533	LG:406595.2:2001JUN22	-171	193	forward 1	TM	Transmembrane
533	LG:406595.2:2001JUN22	194	250	forward 1	TM	Non-Cytosolic
533	LG:406595.2:2001JUN22	251	273	forward 1	TM	Transmembrane
533	LG:406595.2:2001JUN22	274	443	forward 1	TM	Cytosolic
533	LG:406595.2:2001JUN22	444	466	forward 1	TM	Transmembrane
533	LG:406595.2:2001JUN22	467	485	forward 1	TM	Non-Cytosolic
533	LG:406595.2:2001JUN22	486	508	forward 1	TM	Transmembrane
533	LG:406595.2:2001JUN22	509	726	forward 1	TM	Cytosolic
533	LG:406595.2:2001JUN22	727	749	forward 1	TM	Transmembrane
533	LG:406595.2:2001JUN22	750	763	forward 1	TM	Non-Cytosolic
533	LG:406595.2:2001JUN22	764	786	forward 1	TM	Transmembrane
533	LG:406595.2:2001JUN22	787	894	forward 1	TM	Cytosolic
533	LG:406595.2:2001JUN22	895	917	forward 1	TM	Transmembrane
533	LG:406595.2:2001JUN22	918	1341	forward 1	TM	Non-Cytosolic
533	LG:406595.2:2001JUN22	1	94	forward 2	TM	Cytosolic
533	LG:406595.2:2001JUN22	95	117	forward 2	TM	Transmembrane
533	LG:406595.2:2001JUN22	118	442	forward 2	TM	Non-Cytosolic
533	LG:406595.2:2001JUN22	443	465	forward 2	TM	Transmembrane
533	LG:406595.2:2001JUN22	466	633	forward 2	TM	Cytosolic
533	LG:406595.2:2001JUN22	634	653	forward 2	TM	Transmembrane
533	LG:406595.2:2001JUN22	654	1064	forward 2	TM	Non-Cytosolic
533	LG:406595.2:2001JUN22	1065	1087	forward 2	TM	Transmembrane
533	LG:406595.2:2001JUN22	1088	1120	forward 2	TM	Cytosolic
533	LG:406595.2:2001JUN22	1121	1143	forward 2	TM	Transmembrane
533	LG:406595.2:2001JUN22	1144	1152	forward 2	TM	Non-Cytosolic
533	LG:406595.2:2001JUN22	1153	1172	forward 2	TM	Transmembrane
533	LG:406595.2:2001JUN22	1173	1304	forward 2	TM	Cytosolic

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		TABL	.E 2			
CEO D NO.	Tamplate ID	Start	Stop	Frame	Domain Type	Topology
SEQ D NO:	Template ID LG:406595.2:2001JUN22	1305	1327	forward 2	TM	Transmembrane
533		1303	1341	forward 2	TM	Non-Cytosolic
	LG:406595.2:2001JUN22	1328	336	forward 3	TM	Non-Cytosolic
533	LG:406595.2:2001JUN22	337	359	forward 3	TM	Transmembrane
533	LG:406595.2:2001JUN22			forward 3	TM	Cytosolic
533	LG:406595.2:2001JUN22	. 360		forward 3	TM	Transmembrane
533	LG:406595.2:2001JUN22	379	398			Non-Cytosolic
533	LG:406595.2:2001JUN22	399	450	forward 3	TM	•
533	LG:406595.2:2001JUN22	451	473	forward 3	TM	Transmembrane
533	LG:406595.2:2001JUN22	474	479	forward 3	TM	Cytosolic
533	LG:406595.2:2001JUN22	480	502	forward 3	TM	Transmembrane
533	LG:406595.2:2001JUN22	503	543	forward 3	TM	Non-Cytosolic
533	LG:406595.2:2001JUN22	544	566	forward 3	TM	Transmembrane
533	LG:406595.2:2001JUN22	567	838	forward 3	TM	Cytosolic
533	LG:406595.2:2001JUN22	839	861	forward 3	TM	Transmembrane
533	LG:406595.2:2001JUN22	862	1340	forward 3	TM	Non-Cytosolic
534	LG:410628.21:2001JUN22	1	161	forward 1	TM	Cytosolic
534	LG:410628.21:2001JUN22	162	184	forward 1	TM	Transmembrane
534	LG:410628.21:2001JUN22	185	203	forward 1	TM	Non-Cytosolic
534	LG:410628.21:2001JUN22	1	8	forward 2	TM	Cytosolic
534	LG:410628.21:2001JUN22	9	31	forward 2	TM	Transmembrane
534	LG:410628.21:2001JUN22	32	202	forward 2	TM	Non-Cytosolic
534	LG:410628.21:2001JUN22	1	21	forward 3	TM	Non-Cytosolic
534	LG:410628.21:2001JUN22	22	44	forward 3	TM	Transmembrane
534	LG:410628.21:2001JUN22	45	64.	forward 3	TM	Cytosolic
534	LG:410628.21:2001JUN22	65	87	, forward 3	TM	Transmembrane
534	LG:410628.21:2001JUN22	. 88.	91	forward 3	TM	Non-Cytosolic
534	LG:410628.21:2001JUN22	. : 92	114	forward 3	TM	Transmembrane
534	LG:410628.21:2001JUN22	115	202	forward 3	TM	Cytosolic
535	LG:413583.15:2001JUN22	. 1	777	forward 1	TM	Non-Cytosolic
535	LG:413583.15:2001JUN22	778	800	forward 1	TM	Transmembrane
535	LG:413583.15:2001JUN22	801	834	forward 1	TM	Cytosolic
535	LG:413583.15:2001JUN22	835	857	forward 1	TM	Transmembrane
535	LG:413583.15:2001JUN22	858	866	forward 1	TM	Non-Cytosolic
535	LG:413583.15:2001JUN22	867	889	forward 1	TM	Transmembrane
535	LG:413583.15:2001JUN22	890	1120	forward 1	TM	Cytosolic
535	LG:413583.15:2001JUN22	1121	1143	forward 1	TM	Transmembrane
535	LG:413583.15:2001JUN22	1144	1145	forward 1	TM	Non-Cytosolic
535	LG:413583.15:2001JUN22	1	837	forward 2	TM	Non-Cytosolic
535	LG:413583.15:2001JUN22	838	860	forward 2	TM	Transmembrane
535	LG:413583.15:2001JUN22	861	871	forward 2	TM	Cytosolic
535	LG:413583.15:2001JUN22	872	894	forward 2	TM	Transmembrane
535	LG:413583.15:2001JUN22	895	1145	forward 2	TM	Non-Cytosolic
535	LG:413583.15:2001JUN22	1	637	forward 3	TM	Non-Cytosolic
535	LG:413583.15:2001JUN22	638	657	forward 3	TM	Transmembrane
535	LG:413583.15:2001JUN22	658	718	forward 3	TM	Cytosolic
535	LG:413583.15:2001JUN22	719	741	forward 3	TM	Transmembrane
535	LG:413583.15:2001JUN22	742	755	forward 3	TM	Non-Cytosolic
535	LG:413583.15:2001JUN22	756	778	forward 3	TM	Transmembrane
535	LG:413583.15:2001JUN22	779	831	forward 3	TM	Cytosolic
535	LG:413583.15:2001JUN22	832	854	forward 3	TM	Transmembrane
535	LG:413583.15:2001JUN22	855	868	forward 3	TM	Non-Cytosolic
535	LG:413583.15:2001JUN22	869	891	forward 3	TM	Transmembrane
535	LG:413583.15:2001JUN22	892	1145		TM	Cytosolic
536	LG:419641.35:2001JUN22	1	530	forward 1	TM	Non-Cytosolic
550		238			<del>-</del>	•

		TABI	TABLE 2				
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology	
536	LG:419641.35:2001JUN22	531	548	forward 1	TM	Transmembrane	
536	LG:419641.35:2001JUN22	549	668	forward 1	TM	Cytosolic	
536	LG:419641.35:2001JUN22	669	688	forward 1	TM	Transmembrane	
536	LG:419641.35:2001JUN22	689	1100	forward I	TM	Non-Cytosolic	
536	LG:419641.35:2001JUN22	1	1002	forward 2	TM	Non-Cytosolic	
536	LG:419641.35:2001JUN22	1003	1020	forward 2	TM	Transmembrane	
536	LG:419641.35:2001JUN22	1021	1032	forward 2	TM	Cytosolic	
536	LG:419641.35:2001JUN22	1033	1055	forward 2	TM	Transmembrane	
536	LG:419641.35:2001JUN22	1056	1074	forward 2	TM	Non-Cytosolic	
536	LG:419641.35:2001JUN22	1075	1097	forward 2	TM	Transmembrane	
536	LG:419641.35:2001JUN22	1098	1100	forward 2	TM	Cytosolic	
536	LG:419641.35:2001JUN22	1	93	forward 3	TM	Cytosolic	
536	LG:419641.35:2001JUN22	94	116	forward 3	TM	Transmembrane	
536	LG:419641.35:2001JUN22	117	996	forward 3	TM	Non-Cytosolic	
536	LG:419641.35:2001JUN22	997	1019	forward 3	TM	Transmembrane	
536	LG:419641.35:2001JUN22	1020	1099	forward 3	TM	Cytosolic	
537	LG:420759.4:2001JUN22	1	100	forward 3	TM	Cytosolic	
537	LG:420759.4:2001JUN22	101	123	forward 3	TM	Transmembrane	
537	LG:420759.4:2001JUN22	124	125	forward 3	TM	Non-Cytosolic	
538	LG:425448.18:2001JUN22	1	355	forward 1	TM	Cytosolic	
538	LG:425448.18:2001JUN22	356	378	forward 1	TM	Transmembrane	
538	LG:425448.18:2001JUN22	379	1500	forward 1	TM	Non-Cytosolic	
539	LG:435717.5:2001JUN22	1	20	forward 1	TM	Cytosolic	
539	LG:435717.5:2001JUN22	. 21 .	43	forward 1	TM	Transmembrane	
539	LG:435717.5:2001JUN22	. 44	688	forward 1	TM	Non-Cytosolic	
539	LG:435717.5:2001JUN22	689	·706	forward 1	TM	Transmembrane	
539	LG:435717.5:2001JUN22	707	712	forward 1	· TM	Cytosolic	
539	LG:435717.5:2001JUN22	713	732	forward 1	TM	Transmembrane	
539	LG:435717.5:2001JUN22	. 733	746	forward 1	. <b>TM</b>	Non-Cytosolic	
539	LG:435717.5:2001JUN22	747	769	forward 1	TM	Transmembrane	
539	LG:435717.5:2001JUN22	770	789	forward 1	TM	Cytosolic	
539	LG:435717.5:2001JUN22	1	14	forward 2	TM	Non-Cytosolic	
539	LG:435717.5:2001JUN22	15	34	forward 2	TM	Transmembrane	
539	LG:435717.5:2001JUN22	35	71	forward 2	TM	Cytosolic	
539	LG:435717.5:2001JUN22	72	94	forward 2	TM	Transmembrane	
<i>5</i> 39	LG:435717.5:2001JUN22	95	113	forward 2	TM	Non-Cytosolic	
539	LG:435717.5:2001JUN22	114	136	forward 2	TM	Transmembrane	
539	LG:435717.5:2001JUN22	137	190	forward 2	TM	Cytosolic	
539	LG:435717.5:2001JUN22	191	213	forward 2	TM	Transmembrane	
539	LG:435717.5:2001JUN22	214	401	forward 2	TM	Non-Cytosolic	
539	LG:435717.5:2001JUN22	402	424	forward 2	TM	Transmembrane	
539	LG:435717.5:2001JUN22	425	753	forward 2	TM	Cytosolic	
539	LG:435717.5:2001JUN22	754	776	forward 2	TM	Transmembrane	
539	LG:435717.5:2001JUN22	777	789	forward 2	TM	Non-Cytosolic	
539	LG:435717.5:2001JUN22	1	405	forward 3	TM	Non-Cytosolic	
539	LG:435717.5:2001JUN22	406	428	forward 3	TM	Transmembrane	
539	LG:435717.5:2001JUN22	429	480	forward 3	TM	Cytosolic	
539	LG:435717.5:2001JUN22	481	503	forward 3	TM	Transmembrane	
539	LG:435717.5:2001JUN22	504	720	forward 3	TM	Non-Cytosolic	
539	LG:435717.5:2001JUN22	721	743	forward 3	TM	Transmembrane	
539	LG:435717.5:2001JUN22	744	749	forward 3	TM	Cytosolic	
539	LG:435717.5:2001JUN22	750	769	forward 3	TM	Transmembrane	
539	LG:435717.5:2001JUN22	770	788	forward 3	TM	Non-Cytosolic	
540	LG:441159.31:2001JUN22	1	725	forward 1	TM	Non-Cytosolic	
		239	)				

		TABL	E 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
540	LG:441159.31:2001JUN22	726	748	forward 1	TM	Transmembrane
540	LG:441159.31:2001JUN22	749	767	forward 1	TM '	Cytosolic
540	LG:441159.31:2001JUN22	768	787	forward 1	TM	Transmembrane
540	LG:441159.31:2001JUN22	788	810	forward 1	TM	Non-Cytosolic
540	LG:441159.31:2001JUN22	811	833	forward 1	TM	Transmembrane
540	LG:441159.31:2001JUN22	834	835	forward 1	TM	Cytosolic
540	LG:441159.31:2001JUN22	1	242	forward 2	TM	Non-Cytosolic
540	LG:441159.31:2001JUN22	243	265	forward 2	TM	Transmembrane
540	LG:441159.31:2001JUN22	266	618	forward 2	TM	Cytosolic
540	LG:441159.31:2001JUN22	619	641	forward 2	TM	Transmembrane
540	LG:441159.31:2001JUN22	642	725	forward 2	TM	Non-Cytosolic
540	LG:441159.31:2001JUN22	726	748	forward 2	TM	Transmembrane
540	LG:441159.31:2001JUN22	749	768	forward 2	TM	Cytosolic
540	LG:441159.31:2001JUN22	769	788	forward 2	TM	Transmembrane
540	LG:441159.31:2001JUN22	789	834	forward 2	TM	Non-Cytosolic
540	LG:441159.31:2001JUN22	1	459	forward 3	TM	Non-Cytosolic
540	LG:441159.31:2001JUN22	460	482	forward 3	TM	Transmembrane
540	LG:441159.31:2001JUN22	483	486	forward 3	TM	Cytosolic
540	LG:441159.31:2001JUN22	487	509	forward 3	TM	Transmembrane
540	LG:441159.31:2001JUN22	510	722	forward 3	TM	Non-Cytosolic
540	LG:441159.31:2001JUN22	723	745	forward 3	TM	Transmembrane
540	LG:441159.31:2001JUN22	746	765	forward 3	TM	Cytosolic
540	LG:441159.31:2001JUN22	766	788	forward 3	TM	Transmembrane
540	LG:441159.31:2001JUN22	789	834	forward 3	TM	Non-Cytosolic
541	LG:461375.2:2001JUN22	· 1	1414	forward, 1	TM	Non-Cytosolic
541	LG:461375.2:2001JUN22	1415	1437	forward 1	TM	Transmembrane
541	LG:461375.2:2001JUN22	1438	1438	· forward 1·	TM	Cytosolic
541	LG:461375.2:2001JUN22	1439	1461	forward 1	TM	Transmembrane
541	LG:461375.2:2001JUN22	1462	1613	forward 1	TM	Non-Cytosolic
541	LG:461375.2:2001JUN22	1	260	forward 2	TM	Non-Cytosolic
541	LG:461375.2:2001JUN22	261	283	forward 2	TM	Transmembrane
541	LG:461375.2:2001JUN22	284	303	forward 2	TM	Cytosolic
541	LG:461375.2:2001JUN22	304	326	forward 2	· TM	Transmembrane
541	LG:461375.2:2001JUN22	327	335	forward 2	TM	Non-Cytosolic
541	LG:461375.2:2001JUN22	336	358	forward 2	TM	Transmembrane
541	LG:461375.2:2001JUN22	359	423	forward 2	TM	Cytosolic
541	LG:461375.2:2001JUN22	424	446	forward 2	TM	Transmembrane
541	LG:461375.2:2001JUN22	447	1357	forward 2	TM	Non-Cytosolic
541	LG:461375.2:2001JUN22	1358		forward 2	TM	Transmembrane
541	LG:461375.2:2001JUN22	1381	1434	forward 2	TM	Cytosolic
541	LG:461375.2:2001JUN22	1435	1457	forward 2	TM	Transmembrane
541	LG:461375.2:2001JUN22	1458	1547	forward 2	TM	Non-Cytosolic
541	LG:461375.2:2001JUN22	1548	1570	forward 2	TM	Transmembrane
541	LG:461375.2:2001JUN22	1571	1582	forward 2	TM	Cytosolic
541	LG:461375.2:2001JUN22	1583	1605	forward 2	TM	Transmembrane
541	LG:461375.2:2001JUN22	1606	1613	forward 2	TM	Non-Cytosolic
541	LG:461375.2:2001JUN22	1	1318	forward 3	TM	Non-Cytosolic
541	LG:461375.2:2001JUN22	1319	1341	forward 3	TM	Transmembrane
541	LG:461375.2:2001JUN22	1342	1440	forward 3	TM	Cytosolic
541	LG:461375.2:2001JUN22	1441	1463	forward 3	TM	Transmembrane
541	LG:461375.2:2001JUN22	1464	1477	forward 3	TM	Non-Cytosolic
541	LG:461375.2:2001JUN22	1478	1500	forward 3	TM	Transmembrane
541	LG:461375.2:2001JUN22	1501	1578	forward 3	TM	Cytosolic
541	LG:461375.2:2001JUN22	1579 2 <b>40</b>	1598	forward 3	TM	Transmembrane

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		TAB	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
541	LG:461375.2:2001JUN22	1599	1613	forward 3	TM	Non-Cytosolic
542	LG:474674.34:2001JUN22	1	4	forward 1	TM	Non-Cytosolic
542	LG:474674.34:2001JUN22	5	27	forward 1	TM	Transmembrane
542	LG:474674.34:2001JUN22	28	125	forward 1	TM	Cytosolic
542	LG:474674.34:2001JUN22	126	, 148	forward 1	TM	Transmembrane
542	LG:474674.34:2001JUN22	149	284	forward 1	TM	Non-Cytosolic
542	LG:474674.34:2001JUN22	1	14	forward 3	TM	Non-Cytosolic
542	LG:474674.34:2001JUN22	15	33	forward 3	TM	Transmembrane
542	LG:474674.34:2001JUN22	34	283	forward 3	TM	Cytosolic
543	LG:481414.8:2001JUN22	1	857	forward 1	TM	Non-Cytosolic
543	LG:481414.8:2001JUN22	858	<b>Ś80</b>	forward 1	TM	Transmembrane
543	LG:481414.8:2001JUN22	881	886	forward 1	TM	Cytosolic
543	LG:481414.8:2001JUN22	887	906	forward 1	TM	Transmembrane
543	LG:481414.8:2001JUN22	907	982	forward 1	TM	Non-Cytosolic

brane lic brane solic solic brane lic solic brane lic brane Non-Cytosolic 543 LG:481414.8:2001JUN22 907 iorward i 543 LG:481414.8:2001JUN22 1 480 forward 2 TM Non-Cytosolic 481 503 TM Transmembrane 543 LG:481414.8:2001JUN22 forward 2 504 635 forward 2 TM Cytosolic 543 LG:481414.8:2001JUN22 Transmembrane 636 658 forward 2 TM 543 LG:481414.8:2001JUN22 659 981 forward 2 TM Non-Cytosolic 543 LG:481414.8:2001JUN22 544 LG:7669276.1:2001JUN22 1 174 forward 2 TM Non-Cytosolic 175 197 forward 2 TM Transmembrane 544 LG:7669276.1:2001JUN22 LG:7669276.1:2001JUN22 544 198 202 forward 2 TM Cytosolic 9 forward 1 TM Non-Cytosolic LG:7677848.1:2001JUN22 545 1 32 TM Transmembrane 10 forward 1 .... 545 LG:7677848.1:2001JUN22 545 LG:7677848.1:2001JUN22 33 62 forward 1 · TM Cytosolic LG:7677848.1:2001JUN22 63 85 forward 1/4 TM Transmembrane 545 109 forward 1 TM Non-Cytosolic 545 LG:7677848.1:2001JUN22 86 LG:7684981.3:2001JUN22 1 25 forward 1 TM Cytosolic 546 LG:7684981.3:2001JUN22 26 48 forward 1 TM Transmembrane 546 LG:7684981.3:2001JUN22 49 128 forward 1 TM Non-Cytosolic 546 546 LG:7684981.3:2001JUN22 129 151 forward 1 TM Transmembrane 546 LG:7684981.3:2001JUN22 152 471 forward 1 TM Cytosolic LG:7684981.3:2001JUN22 472 494 forward 1 TM Transmembrane 546 forward 1 Non-Cytosolic 546 LG:7684981.3:2001JUN22 495 718 TM 128 forward 2 TM Non-Cytosolic 546 LG:7684981.3:2001JUN22 1 Transmembrane 129 151 forward 2 TM546 LG:7684981.3:2001JUN22 forward 2 Cytosolic 546 LG:7684981.3:2001JUN22 152 484 TM 546 LG:7684981.3:2001JUN22 485 507 forward 2 TM Transmembrane 508 718 forward 2 'TM Non-Cytosolic 546 LG:7684981.3:2001JUN22 1 20 forward 3 TM Cytosolic 546 LG:7684981.3:2001JUN22 Transmembrane 21 43 forward 3 TM 546 LG:7684981.3:2001JUN22 Non-Cytosolic 44 128 forward 3 TM 546 LG:7684981.3:2001JUN22 Transmembrane 546 LG:7684981.3:2001JUN22 129 151 forward 3 TM LG:7684981.3:2001JUN22 152 171 forward 3 TM Cytosolic 546 546 LG:7684981.3:2001JUN22 172 191 forward 3 TM Transmembrane LG:7684981.3:2001JUN22 192 717 forward 3 TM Non-Cytosolic 546 Cytosolic 547 LG:7685048.6:2001JUN22 1 20 forward 1 TM 547 LG:7685048.6:2001JUN22 21 43 forward 1 TM Transmembrane LG:7685048.6:2001JUN22 547 44 180 forward 1 TM Non-Cytosolic 547 LG:7685048.6:2001JUN22 ì 20 forward 3 TM Cytosolic LG:7685048.6:2001JUN22 Transmembrane 547 21 43 forward 3 TM 179 Non-Cytosolic 547 LG:7685048.6:2001JUN22 44 forward 3 TM 548 LG:7688302.1:2001JUN22 1 245 forward 1 TM Cytosolic 548 LG:7688302.1:2001JUN22 246 268 forward 1 Transmembrane TM

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SEQ D NO:         Template ID         Start         Stop         Frame         Domain Type         Topology           548         LG:7688302.1:2001JUN22         283         305         forward 1         TM         Non-Cytosolic           548         LG:7688302.1:2001JUN22         283         305         forward 1         TM         Cytosolic           548         LG:7688302.1:2001JUN22         245         267         forward 3         TM         Non-Cytosolic           548         LG:7688302.1:2001JUN22         245         267         forward 3         TM         Cytosolic           548         LG:7688302.1:2001JUN22         274         296         forward 3         TM         Transmembrane           548         LG:7688402.1:2001JUN22         274         296         forward 3         TM         Transmembrane           549         LG:76890463.3:2001JUN22         297         308         forward 1         TM         Non-Cytosolic           549         LG:7690463.3:2001JUN22         338         360         forward 1         TM         Non-Cytosolic           549         LG:7690463.3:2001JUN22         339         361         forward 3         TM         Cytosolic           549         LG:769049.5:200			TABL	E 2			
548         LG:7688302.1:2001JUN22         282         forward 1         TM         Non-Cytosolic           548         LG:7688302.1:2001JUN22         283         305         forward 1         TM         Transmembrane           548         LG:7688302.1:2001JUN22         243         267         forward 3         TM         Non-Cytosolic           548         LG:7688302.1:2001JUN22         245         267         forward 3         TM         Non-Cytosolic           548         LG:7688302.1:2001JUN22         247         267         forward 3         TM         Non-Cytosolic           548         LG:7688302.1:2001JUN22         277         308         forward 3         TM         Non-Cytosolic           549         LG:76890463.3:2001JUN22         1         337         forward 1         TM         Non-Cytosolic           549         LG:7690463.3:2001JUN22         338         360         forward 1         TM         Transmembrane           549         LG:7690463.3:2001JUN22         339         361         forward 1         TM         Cytosolic           549         LG:7690463.3:2001JUN22         339         361         forward 3         TM         Non-Cytosolic           549         LG:7691499.5:2001JUN22	SEO D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
548         LG:7688302.1:2001JUN22         283         305         forward 1         TM         Transmembrane           548         LG:7688302.1:2001JUN22         1         244         forward 3         TM         Non-Cytosolic           548         LG:7688302.1:2001JUN22         268         273         forward 3         TM         Transmembrane           548         LG:7688302.1:2001JUN22         274         296         forward 3         TM         Cytosolic           548         LG:7688302.1:2001JUN22         274         296         forward 3         TM         Cytosolic           548         LG:7690463.3:2001JUN22         1         337         forward 1         TM         Non-Cytosolic           549         LG:7690463.3:2001JUN22         338         360         forward 1         TM         Non-Cytosolic           549         LG:7690463.3:2001JUN22         339         361         forward 3         TM         Non-Cytosolic           549         LG:7690463.3:2001JUN22         339         361         forward 3         TM         Non-Cytosolic           549         LG:7690463.3:2001JUN22         399         361         forward 3         TM         Non-Cytosolic           550         LG:7691479.5:2					forward 1	TM	
548         L.G.7688302.1:2001JUN22         306         309         forward 1         TM         Cytosolic           548         L.G.7688302.1:2001JUN22         245         267         forward 3         TM         Non-Cytosolic           548         L.G.7688302.1:2001JUN22         242         267         forward 3         TM         Cytosolic           548         L.G.7688302.1:2001JUN22         274         296         forward 3         TM         Cytosolic           548         L.G.7688302.1:2001JUN22         274         296         forward 3         TM         Non-Cytosolic           549         L.G.7690463.3:2001JUN22         338         360         forward 1         TM         Non-Cytosolic           549         L.G.7690463.3:2001JUN22         338         360         forward 1         TM         Non-Cytosolic           549         L.G.7690463.3:2001JUN22         362         400         forward 3         TM         Non-Cytosolic           549         L.G.7690463.3:2001JUN22         362         400         forward 3         TM         Non-Cytosolic           549         L.G.7690479.5:2001JUN22         19         forward 3         TM         Non-Cytosolic           550         L.G.7691479.5:2001JUN22 <td></td> <td></td> <td></td> <td>305</td> <td>forward 1</td> <td>TM</td> <td>•</td>				305	forward 1	TM	•
548         LG:7688302.1:2001JUN22         245         267         forward 3         TM         Non-Cytosolic           548         LG:7688302.1:2001JUN22         268         273         forward 3         TM         Transmembrane           548         LG:7688302.1:2001JUN22         274         296         forward 3         TM         Transmembrane           548         LG:7690463.3:2001JUN22         277         308         forward 3         TM         Non-Cytosolic           549         LG:7690463.3:2001JUN22         313         forward 1         TM         Non-Cytosolic           549         LG:7690463.3:2001JUN22         314         401         forward 1         TM         Cytosolic           549         LG:7690463.3:2001JUN22         31         338         forward 3         TM         Cytosolic           549         LG:7690463.3:2001JUN22         393         361         forward 3         TM         Cytosolic           550         LG:7691479.5:2001JUN22         31         19         forward 1         TM         Cytosolic           550         LG:7691479.5:2001JUN22         31         19         forward 1         TM         Cytosolic           551         LG:7691479.5:2001JUN22         39			306	309	forward 1	TM	Cytosolic
548         L.G.7688302.1:2001JUN22         245         267         forward 3         TM         Transmembrane Cytosolic           548         L.G.7688302.1:2001JUN22         274         296         forward 3         TM         Transmembrane           548         L.G.7688302.1:2001JUN22         297         308         forward 3         TM         Non-Cytosolic           549         L.G.7690463.3:2001JUN22         338         360         forward 1         TM         Non-Cytosolic           549         L.G.7690463.3:2001JUN22         361         401         forward 1         TM         Non-Cytosolic           549         L.G.7690463.3:2001JUN22         361         401         forward 3         TM         Non-Cytosolic           549         L.G.7690463.3:2001JUN22         362         400         forward 3         TM         Non-Cytosolic           550         L.G.7691479.5:2001JUN22         1         19         forward 3         TM         Cytosolic           550         L.G.7691479.5:2001JUN22         2         40         forward 1         TM         Non-Cytosolic           550         L.G.7691479.5:2001JUN22         43         94         forward 1         TM         Transmembrane           550			1	244	forward 3	TM	Non-Cytosolic
548         LG:7688302.1:2001JUN22         268         273         forward 3         TM         Cytosolic           548         LG:7688302.1:2001JUN22         277         296         forward 3         TM         Transmembrane           548         LG:7698463.3:2001JUN22         1         337         forward 1         TM         Non-Cytosolic           549         LG:7690463.3:2001JUN22         31         338         360         forward 1         TM         Non-Cytosolic           549         LG:7690463.3:2001JUN22         31         388         forward 3         TM         Non-Cytosolic           549         LG:7690463.3:2001JUN22         33         361         forward 3         TM         Non-Cytosolic           549         LG:7690463.3:2001JUN22         339         361         forward 3         TM         Non-Cytosolic           550         LG:7691479.5:2001JUN22         1         19         forward 1         TM         Transmembrane           550         LG:7691479.5:2001JUN22         20         42         forward 1         TM         Transmembrane           550         LG:7691479.5:2001JUN22         39         51         forward 1         TM         Cytosolic           551         L			. 245	267	forward 3	· TM	-
548         LG:7688302.1:2001JUN22         274         296         forward 3         TM         Transmembrane           548         LG:7688302.1:2001JUN22         297         308         forward 3         TM         Non-Cytosolic           549         LG:7690463.3:2001JUN22         338         360         forward 1         TM         Non-Cytosolic           549         LG:7690463.3:2001JUN22         361         401         forward 1         TM         Cytosolic           549         LG:7690463.3:2001JUN22         339         361         forward 3         TM         Cytosolic           549         LG:7690463.3:2001JUN22         339         361         forward 3         TM         Cytosolic           550         LG:7691479.5:2001JUN22         362         400         forward 3         TM         Cytosolic           550         LG:7691479.5:2001JUN22         20         42         forward 1         TM         Cytosolic           550         LG:7691479.5:2001JUN22         43         94         forward 1         TM         Cytosolic           551         LG:7691479.5:2001JUN22         95         117         forward 1         TM         Cytosolic           551         LG:7691479.5:2001JUN22					forward 3	TM	Cytosolic
548         LG:7688302.1:2001JUN22         297         308         forward 3         TM         Non-Cytosolic           549         LG:7690463.3:2001JUN22         1         337         forward 1         TM         Transmembrane           549         LG:7690463.3:2001JUN22         361         401         forward 1         TM         Cytosolic           549         LG:7690463.3:2001JUN22         338         forward 3         TM         Non-Cytosolic           549         LG:7690463.3:2001JUN22         362         400         forward 3         TM         Non-Cytosolic           549         LG:7691479.5:2001JUN22         362         400         forward 3         TM         Non-Cytosolic           550         LG:7691479.5:2001JUN22         1         19         forward 1         TM         Non-Cytosolic           550         LG:7691479.5:2001JUN22         43         94         forward 1         TM         Cytosolic           550         LG:7691479.5:2001JUN22         95         117         forward 1         TM         Non-Cytosolic           551         LG:7691479.5:2001JUN22         1         38         forward 1         TM         Non-Cytosolic           551         LG:7691479.5:2001JUN22         1<				296	forward 3	TM	Transmembrane
S49   LG:7690463.3:2001JUN22   338 360   forward 1   TM   Non-Cytosolic   S49   LG:7690463.3:2001JUN22   338 360   forward 1   TM   Cytosolic   S49   LG:7690463.3:2001JUN22   1   338   forward 3   TM   Non-Cytosolic   S49   LG:7690463.3:2001JUN22   339 361   forward 3   TM   Non-Cytosolic   S49   LG:7690463.3:2001JUN22   339 361   forward 3   TM   Non-Cytosolic   Transmembrane   S50   LG:7691479.5:2001JUN22   1   19   forward 1   TM   Non-Cytosolic   S50   LG:7691479.5:2001JUN22   20   42   forward 1   TM   Non-Cytosolic   S50   LG:7691479.5:2001JUN22   39   49   forward 1   TM   Non-Cytosolic   S50   LG:7691479.5:2001JUN22   39   49   forward 1   TM   Transmembrane   S50   LG:7691479.5:2001JUN22   39   517   forward 1   TM   Transmembrane   S50   LG:7691479.5:2001JUN22   39   56   forward 1   TM   Cytosolic   S51   LG:7691527.4:2001JUN22   39   56   forward 1   TM   Cytosolic   S51   LG:7691527.4:2001JUN22   39   56   forward 1   TM   Transmembrane   S51   LG:7691527.4:2001JUN22   16   192   forward 1   TM   Cytosolic   TM   Transmembrane   S51   LG:7691527.4:2001JUN22   10   12   forward 3   TM   Cytosolic   S52   LG:7691663.1:2001JUN22   12   13   forward 3   TM   Transmembrane   S52   LG:7691663.1:2001JUN22   12   13   forward 1   TM   Cytosolic   S52   LG:7691663.1:2001JUN22   12   12   12   12   12   12   12					forward 3	TM	
S49				337	forward 1	TM	-
S49			338		forward 1	TM	-
S49					forward 1	TM	Cytosolic
S49					forward 3		
S49					forward 3		
S50					forward 3		Cytosolic
S50					forward 1		
S50					forward 1		
S50					forward 1	TM	Cytosolic
S50				117	forward 1	TM	-
551         LG:7691527.4:2001JUN22         1         38         forward 1         TM         Cytosolic           551         LG:7691527.4:2001JUN22         39         56         forward 1         TM         Transmembrane           551         LG:7691527.4:2001JUN22         96         115         forward 1         TM         Non-Cytosolic           551         LG:7691527.4:2001JUN22         96         115         forward 1         TM         Non-Cytosolic           551         LG:7691527.4:2001JUN22         116         192         forward 1         TM         Cytosolic           551         LG:7691527.4:2001JUN22         10         102         forward 3         TM         Cytosolic           551         LG:7691527.4:2001JUN22         10         3191         forward 3         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         1         213         forward 3         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         214         236         forward 1         TM         Cytosolic           552         LG:7691663.1:2001JUN22         237         265         forward 1         TM         Cytosolic           552         LG:7691663.1:2001JUN22					forward 1		Non-Cytosolic
551         LG:7691527.4:2001JUN22         39         56         forward 1         TM         Transmembrane           551         LG:7691527.4:2001JUN22         57         95         forward 1         TM         Non-Cytosolic           551         LG:7691527.4:2001JUN22         116         192         forward 1         TM         Cytosolic           551         LG:7691527.4:2001JUN22         1         79         forward 3         TM         Cytosolic           551         LG:7691527.4:2001JUN22         103         191         forward 3         TM         Non-Cytosolic           551         LG:7691631.22001JUN22         103         191         forward 3         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         214         236         forward 1         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         214         236         forward 1         TM         Cytosolic           552         LG:7691663.1:2001JUN22         21         207         forward 3         TM         Cytosolic           552         LG:7691663.1:2001JUN22         208         230         forward 3         TM         Cytosolic           552         LG:7691854.1:2001JUN22					forward 1		·
551         LG:7691527.4:2001JUN22         57         95         forward 1         TM         Non-Cytosolic           551         LG:7691527.4:2001JUN22         96         115         forward 1         TM         Transmembrane           551         LG:7691527.4:2001JUN22         116         192         forward 1         TM         Cytosolic           551         LG:7691527.4:2001JUN22         80         102         forward 3         TM         Transmembrane           551         LG:7691527.4:2001JUN22         103         191         forward 3         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         1         213         forward 1         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         214         236         forward 1         TM         Cytosolic           552         LG:7691663.1:2001JUN22         237         265         forward 1         TM         Cytosolic           552         LG:7691663.1:2001JUN22         232         266         forward 3         TM         Transmembrane           552         LG:7691863.1:2001JUN22         208         230         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN					forward 1		
551         LG:7691527.4:2001JUN22         96         115         forward 1         TM         Transmembrane           551         LG:7691527.4:2001JUN22         116         192         forward 3         TM         Cytosolic           551         LG:7691527.4:2001JUN22         1         79         forward 3         TM         Cytosolic           551         LG:7691527.4:2001JUN22         103         191         forward 3         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         1         213         forward 1         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         214         236         forward 1         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         237         265         forward 1         TM         Cytosolic           552         LG:7691663.1:2001JUN22         208         230         forward 3         TM         Cytosolic           552         LG:7691663.1:2001JUN22         208         230         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         231         264         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22 </td <td></td> <td></td> <td></td> <td></td> <td>forward 1</td> <td>- TM</td> <td>Non-Cytosolic</td>					forward 1	- TM	Non-Cytosolic
551         LG:7691527.4:2001JUN22         116         192         forward 1         TM         Cytosolic           551         LG:7691527.4:2001JUN22         1         79         forward 3         TM         Cytosolic           551         LG:7691527.4:2001JUN22         80         102         forward 3         TM         Transmembrane           551         LG:7691527.4:2001JUN22         103         191         forward 3         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         1         213         forward 1         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         237         265         forward 1         TM         Cytosolic           552         LG:7691663.1:2001JUN22         23         265         forward 3         TM         Cytosolic           552         LG:7691663.1:2001JUN22         20         230         forward 3         TM         Cytosolic           552         LG:7691663.1:2001JUN22         208         230         forward 3         TM         Transmembrane           552         LG:7691663.1:2001JUN22         231         264         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22						TM	
551         LG:7691527.4:2001JUN22         1         79         forward 3         TM         Cytosolic           551         LG:7691527.4:2001JUN22         103         191         forward 3         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         1         213         forward 1         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         214         236         forward 1         TM         Cytosolic           552         LG:7691663.1:2001JUN22         237         265         forward 1         TM         Cytosolic           552         LG:7691663.1:2001JUN22         2         230         forward 3         TM         Cytosolic           552         LG:7691663.1:2001JUN22         208         230         forward 3         TM         Cytosolic           552         LG:7691663.1:2001JUN22         231         264         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         1         258         forward 1         TM         Cytosolic           553         LG:7691854.1:2001JUN22         259         281         forward 1         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22			116	192	forward 1	TM	Cytosolic
551         LG:7691527.4:2001JUN22         80         102         forward 3         TM         Transmembrane           551         LG:7691527.4:2001JUN22         103         191         forward 3         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         1         213         forward 1         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         214         236         forward 1         TM         Cytosolic           552         LG:7691663.1:2001JUN22         237         265         forward 3         TM         Cytosolic           552         LG:7691663.1:2001JUN22         1         207         forward 3         TM         Cytosolic           552         LG:7691663.1:2001JUN22         282         230         forward 3         TM         Cytosolic           553         LG:7691854.1:2001JUN22         21         258         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         259         281         forward 1         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         282         298         forward 2         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22 </td <td></td> <td></td> <td>1</td> <td></td> <td>forward 3</td> <td>TM</td> <td>Cytosolic</td>			1		forward 3	TM	Cytosolic
551         LG:7691527.4:2001JUN22         103         191         forward 3         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         214         236         forward 1         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         214         236         forward 1         TM         Cytosolic           552         LG:7691663.1:2001JUN22         1         207         forward 3         TM         Cytosolic           552         LG:7691663.1:2001JUN22         208         230         forward 3         TM         Cytosolic           552         LG:7691663.1:2001JUN22         231         264         forward 3         TM         Transmembrane           552         LG:7691663.1:2001JUN22         231         264         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         1         258         forward 1         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         259         281         forward 1         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         282         298         forward 2         TM         Non-Cytosolic           553         LG:7691854.1:2001J		LG:7691527.4:2001JUN22	.80	102	forward 3	TM	Transmembrane
552         LG:7691663.1:2001JUN22         1         213         forward 1         TM         Non-Cytosolic           552         LG:7691663.1:2001JUN22         214         236         forward 1         TM         Transmembrane           552         LG:7691663.1:2001JUN22         237         265         forward 1         TM         Cytosolic           552         LG:7691663.1:2001JUN22         208         230         forward 3         TM         Cytosolic           552         LG:7691663.1:2001JUN22         231         264         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         231         264         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         259         281         forward 1         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         282         298         forward 1         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         282         298         forward 2         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 2         TM         Cytosolic           553         LG:7691854.1:200			103	191	forward 3	TM	Non-Cytosolic
552         LG:7691663.1:2001JUN22         214         236         forward 1         TM         Transmembrane           552         LG:7691663.1:2001JUN22         237         265         forward 1         TM         Cytosolic           552         LG:7691663.1:2001JUN22         1         207         forward 3         TM         Cytosolic           552         LG:7691663.1:2001JUN22         208         230         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         231         264         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         1         258         forward 1         TM         Cytosolic           553         LG:7691854.1:2001JUN22         259         281         forward 1         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         282         298         forward 1         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         1         269         forward 2         TM         Transmembrane           553         LG:7691854.1:2001JUN22         293         298         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN			1	213	forward 1	TM	Non-Cytosolic
552         LG:7691663.1:2001JUN22         1         207         forward 3         TM         Cytosolic           552         LG:7691663.1:2001JUN22         208         230         forward 3         TM         Transmembrane           552         LG:7691663.1:2001JUN22         231         264         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         259         281         forward 1         TM         Cytosolic           553         LG:7691854.1:2001JUN22         282         298         forward 1         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         1         269         forward 2         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 2         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         293         298         forward 2         TM         Cytosolic           553         LG:7691854.1:2001JUN22         1         269         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         1         269         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22		LG:7691663.1:2001JUN22	214	236	forward 1	TM	Transmembrane
552         LG:7691663.1:2001JUN22         208         230         forward 3         TM         Transmembrane           552         LG:7691663.1:2001JUN22         231         264         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         1         258         forward 1         TM         Cytosolic           553         LG:7691854.1:2001JUN22         282         298         forward 1         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         1         269         forward 2         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 2         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         293         298         forward 2         TM         Cytosolic           553         LG:7691854.1:2001JUN22         1         269         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 3         TM         Transmembrane           554         LG:7692235.2:200	552	LG:7691663.1:2001JUN22	237	265	forward 1	TM	Cytosolic
552         LG:7691663.1:2001JUN22         231         264         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         1         258         forward 1         TM         Cytosolic           553         LG:7691854.1:2001JUN22         259         281         forward 1         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         282         298         forward 2         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 2         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 2         TM         Cytosolic           553         LG:7691854.1:2001JUN22         293         298         forward 3         TM         Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 3         TM         Transmembrane           553         LG:7691854.1:2001JUN22         293         298         forward 3         TM         Cytosolic           554         LG:7692235.2:2001JUN	552	LG:7691663.1:2001JUN22	1	207	forward 3	TM	Cytosolic
553         LG:7691854.1:2001JUN22         1         258         forward 1         TM         Cytosolic           553         LG:7691854.1:2001JUN22         259         281         forward 1         TM         Transmembrane           553         LG:7691854.1:2001JUN22         282         298         forward 1         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 2         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         293         298         forward 2         TM         Cytosolic           553         LG:7691854.1:2001JUN22         1         269         forward 2         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         1         269         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 3         TM         Transmembrane           554         LG:7691854.1:2001JUN22         293         298         forward 3         TM         Transmembrane           554         LG:7692235.2:2001JUN22         1         134         forward 2         TM         Cytosolic           554         LG:7692235.2:2001JUN22	552	LG:7691663.1:2001JUN22	208	230	forward 3	TM	
553         LG:7691854.1:2001JUN22         259         281         forward 1         TM         Transmembrane           553         LG:7691854.1:2001JUN22         282         298         forward 1         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         1         269         forward 2         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 2         TM         Cytosolic           553         LG:7691854.1:2001JUN22         1         269         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         1         269         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 3         TM         Transmembrane           553         LG:7691854.1:2001JUN22         293         298         forward 3         TM         Cytosolic           554         LG:7691854.1:2001JUN22         293         298         forward 3         TM         Cytosolic           554         LG:7692235.2:2001JUN22         1         134         forward 2         TM         Transmembrane           554         LG:7692235.2:2001JUN22	552	LG:7691663.1:2001JUN22	231	264	forward 3	TM	Non-Cytosolic
553         LG:7691854.1:2001JUN22         282         298         forward 1         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         1         269         forward 2         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 2         TM         Transmembrane           553         LG:7691854.1:2001JUN22         293         298         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 3         TM         Transmembrane           553         LG:7691854.1:2001JUN22         293         298         forward 3         TM         Cytosolic           554         LG:7691854.1:2001JUN22         293         298         forward 3         TM         Cytosolic           554         LG:7692235.2:2001JUN22         1         134         forward 2         TM         Cytosolic           554         LG:7692235.2:2001JUN22         155         163         forward 2         TM         Non-Cytosolic           554         LG:7692235.2:2001J	553	LG:7691854.1:2001JUN22	1	258		TM	-
553         LG:7691854.1:2001JUN22         1         269         forward 2         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         293         298         forward 2         TM         Transmembrane           553         LG:7691854.1:2001JUN22         1         269         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 3         TM         Transmembrane           553         LG:7691854.1:2001JUN22         270         292         forward 3         TM         Transmembrane           554         LG:7691854.1:2001JUN22         293         298         forward 3         TM         Cytosolic           554         LG:7692235.2:2001JUN22         1         134         forward 2         TM         Cytosolic           554         LG:7692235.2:2001JUN22         135         154         forward 2         TM         Non-Cytosolic           554         LG:7692235.2:2001JUN22         155         163         forward 2         TM         Transmembrane           554         LG:7692235.2:2001JUN22         187         190         forward 2         TM         Transmembrane           554         LG:7692235.2:200	553	LG:7691854.1:2001JUN22	259	281	forward 1		
553         LG:7691854.1:2001JUN22         270         292         forward 2         TM         Transmembrane           553         LG:7691854.1:2001JUN22         1         269         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 3         TM         Cytosolic           554         LG:7691854.1:2001JUN22         293         298         forward 3         TM         Cytosolic           554         LG:7692235.2:2001JUN22         1         134         forward 2         TM         Cytosolic           554         LG:7692235.2:2001JUN22         135         154         forward 2         TM         Transmembrane           554         LG:7692235.2:2001JUN22         155         163         forward 2         TM         Non-Cytosolic           554         LG:7692235.2:2001JUN22         187         190         forward 2         TM         Transmembrane           554         LG:7692235.2:2001JUN22         187         190         forward 2         TM         Transmembrane           554         LG:7692235.2:2001J	553	LG:7691854.1:2001JUN22	282	298	forward 1	TM	
553         LG:7691854.1:2001JUN22         293         298         forward 2         TM         Cytosolic           553         LG:7691854.1:2001JUN22         1         269         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 3         TM         Transmembrane           553         LG:7691854.1:2001JUN22         293         298         forward 3         TM         Cytosolic           554         LG:7692235.2:2001JUN22         1         134         forward 2         TM         Cytosolic           554         LG:7692235.2:2001JUN22         135         154         forward 2         TM         Transmembrane           554         LG:7692235.2:2001JUN22         155         163         forward 2         TM         Non-Cytosolic           554         LG:7692235.2:2001JUN22         164         186         forward 2         TM         Transmembrane           554         LG:7692235.2:2001JUN22         187         190         forward 2         TM         Transmembrane           554         LG:7692235.2:2001JUN22         191         213         forward 2         TM         Non-Cytosolic           554         LG:7692235.2:2001J	553	LG:7691854.1:2001JUN22			forward 2		
553         LG:7691854.1:2001JUN22         1         269         forward 3         TM         Non-Cytosolic           553         LG:7691854.1:2001JUN22         270         292         forward 3         TM         Transmembrane           553         LG:7691854.1:2001JUN22         293         298         forward 3         TM         Cytosolic           554         LG:7692235.2:2001JUN22         1         134         forward 2         TM         Cytosolic           554         LG:7692235.2:2001JUN22         135         154         forward 2         TM         Transmembrane           554         LG:7692235.2:2001JUN22         155         163         forward 2         TM         Non-Cytosolic           554         LG:7692235.2:2001JUN22         164         186         forward 2         TM         Transmembrane           554         LG:7692235.2:2001JUN22         187         190         forward 2         TM         Transmembrane           554         LG:7692235.2:2001JUN22         191         213         forward 2         TM         Non-Cytosolic           554         LG:7692235.2:2001JUN22         214         232         forward 2         TM         Non-Cytosolic           554         LG:7692235.2:2	553	LG:7691854.1:2001JUN22	270	292			
553         LG:7691854.1:2001JUN22         270         292         forward 3         TM         Transmembrane           553         LG:7691854.1:2001JUN22         293         298         forward 3         TM         Cytosolic           554         LG:7692235.2:2001JUN22         1         134         forward 2         TM         Cytosolic           554         LG:7692235.2:2001JUN22         155         163         forward 2         TM         Non-Cytosolic           554         LG:7692235.2:2001JUN22         164         186         forward 2         TM         Transmembrane           554         LG:7692235.2:2001JUN22         187         190         forward 2         TM         Cytosolic           554         LG:7692235.2:2001JUN22         191         213         forward 2         TM         Transmembrane           554         LG:7692235.2:2001JUN22         191         213         forward 2         TM         Non-Cytosolic           554         LG:7692235.2:2001JUN22         214         232         forward 2         TM         Non-Cytosolic           554         LG:7692235.2:2001JUN22         214         232         forward 2         TM         Non-Cytosolic           554         LG:7692235.2:200	553	LG:7691854.1:2001JUN22	293		forward 2		-
553 LG:7691854.1:2001JUN22 293 298 forward 3 TM Cytosolic 554 LG:7692235.2:2001JUN22 1 134 forward 2 TM Cytosolic 554 LG:7692235.2:2001JUN22 135 154 forward 2 TM Transmembrane 554 LG:7692235.2:2001JUN22 155 163 forward 2 TM Non-Cytosolic 554 LG:7692235.2:2001JUN22 164 186 forward 2 TM Transmembrane 554 LG:7692235.2:2001JUN22 187 190 forward 2 TM Cytosolic 554 LG:7692235.2:2001JUN22 191 213 forward 2 TM Transmembrane 554 LG:7692235.2:2001JUN22 191 213 forward 2 TM Transmembrane 554 LG:7692235.2:2001JUN22 214 232 forward 2 TM Non-Cytosolic 554 LG:7692235.2:2001JUN22 214 232 forward 2 TM Transmembrane		LG:7691854.1:2001JUN22					-
554 LG:7692235.2:2001JUN22 1 134 forward 2 TM Cytosolic 554 LG:7692235.2:2001JUN22 135 154 forward 2 TM Transmembrane 554 LG:7692235.2:2001JUN22 155 163 forward 2 TM Non-Cytosolic 554 LG:7692235.2:2001JUN22 164 186 forward 2 TM Transmembrane 554 LG:7692235.2:2001JUN22 187 190 forward 2 TM Cytosolic 554 LG:7692235.2:2001JUN22 191 213 forward 2 TM Transmembrane 554 LG:7692235.2:2001JUN22 191 213 forward 2 TM Transmembrane 554 LG:7692235.2:2001JUN22 214 232 forward 2 TM Non-Cytosolic 554 LG:7692235.2:2001JUN22 214 232 forward 2 TM Transmembrane	553	LG:7691854.1:2001JUN22					
554 LG:7692235.2:2001JUN22 135 154 forward 2 TM Transmembrane 554 LG:7692235.2:2001JUN22 155 163 forward 2 TM Non-Cytosolic 554 LG:7692235.2:2001JUN22 164 186 forward 2 TM Transmembrane 554 LG:7692235.2:2001JUN22 187 190 forward 2 TM Cytosolic 554 LG:7692235.2:2001JUN22 191 213 forward 2 TM Transmembrane 554 LG:7692235.2:2001JUN22 191 213 forward 2 TM Transmembrane 554 LG:7692235.2:2001JUN22 214 232 forward 2 TM Non-Cytosolic 554 LG:7692235.2:2001JUN22 233 252 forward 2 TM Transmembrane			293				•
554         LG:7692235.2:2001JUN22         155         163         forward 2         TM         Non-Cytosolic           554         LG:7692235.2:2001JUN22         164         186         forward 2         TM         Transmembrane           554         LG:7692235.2:2001JUN22         187         190         forward 2         TM         Cytosolic           554         LG:7692235.2:2001JUN22         191         213         forward 2         TM         Transmembrane           554         LG:7692235.2:2001JUN22         214         232         forward 2         TM         Non-Cytosolic           554         LG:7692235.2:2001JUN22         233         252         forward 2         TM         Transmembrane							-
554 LG:7692235.2:2001JUN22 164 186 forward 2 TM Transmembrane 554 LG:7692235.2:2001JUN22 187 190 forward 2 TM Cytosolic 554 LG:7692235.2:2001JUN22 191 213 forward 2 TM Transmembrane 554 LG:7692235.2:2001JUN22 214 232 forward 2 TM Non-Cytosolic 554 LG:7692235.2:2001JUN22 233 252 forward 2 TM Transmembrane					-		
554 LG:7692235.2:2001JUN22 187 190 forward 2 TM Cytosolic 554 LG:7692235.2:2001JUN22 191 213 forward 2 TM Transmembrane 554 LG:7692235.2:2001JUN22 214 232 forward 2 TM Non-Cytosolic 554 LG:7692235.2:2001JUN22 233 252 forward 2 TM Transmembrane							-
554       LG:7692235.2:2001JUN22       191       213       forward 2       TM       Transmembrane         554       LG:7692235.2:2001JUN22       214       232       forward 2       TM       Non-Cytosolic         554       LG:7692235.2:2001JUN22       233       252       forward 2       TM       Transmembrane		LG:7692235.2:2001JUN22					
554 LG:7692235.2:2001JUN22 214 232 forward 2 TM Non-Cytosolic 554 LG:7692235.2:2001JUN22 233 252 forward 2 TM Transmembrane							-
554 LG:7692235.2:2001JUN22 233 252 forward 2 TM Transmembrane							
							-
554 LG:7692235.2:2001JUN22 253 259 forward 2 TM Cytosolic							
	554	LG:7692235.2:2001JUN22					-
555 LG:7692239.1:2001JUN22 1 431 forward 1 TM Non-Cytosolic							
555 LG:7692239.1:2001JUN22 432 454 forward 1 TM Transmembrane							
555 LG:7692239.1:2001JUN22 455 474 forward 1 TM Cytosolic	555	LG:7692239.1:2001JUN22		474	forward 1	TM	Cytosolic

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		TAB	LE 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
555	LG:7692239.1:2001JUN22	475	497	forward 1	TM	Transmembrane
555	LG:7692239.1:2001JUN22	498	519	forward 1	TM	Non-Cytosolic
555	LG:7692239.1:2001JUN22	520	542	forward 1	TM	Transmembrane
555	LG:7692239.1:2001JUN22	• 543	553	forward 1	TM	Cytosolic
555	LG:7692239.1:2001JUN22	1	381	forward 3	TM	Cytosolic
555	LG:7692239.1:2001JUN22	382	404	forward 3	TM	Transmembrane
555	LG:7692239.1:2001JUN22	405	485	forward 3	TM	Non-Cytosolic
555	LG:7692239.1:2001JUN22	486	508	forward 3	TM	Transmembrane
555	LG:7692239.1:2001JUN22	509	520	forward 3	TM	Cytosolic
555	LG:7692239.1:2001JUN22	521	543	forward 3	TM	Transmembrane
555	LG:7692239.1:2001JUN22	544	553	forward 3	TM	Non-Cytosolic
556	LG:7692575.1:2001JUN22	1	154	forward 1	TM	Cytosolic
556	LG:7692575.1:2001JUN22	155	177	forward 1	TM	Transmembrane
556	LG:7692575.1:2001JUN22	178	207	forward 1	TM	Non-Cytosolic
556	LG:7692575.1:2001JUN22	208	230	forward 1	TM	Transmembrane
556	LG:7692575.1:2001JUN22	231	375	forward 1	TM	Cytosolic
556	LG:7692575.1:2001JUN22	376	395	forward 1	TM	Transmembrane
556	LG:7692575.1:2001JUN22	396	443	forward 1	TM	Non-Cytosolic
556	LG:7692575.1:2001JUN22	444	466	forward 1	TM	Transmembrane
556	LG:7692575.1:2001JUN22	467	472	forward 1	TM	Cytosolic
556	LG:7692575.1:2001JUN22	473	495	forward 1	TM	Transmembrane
556	LG:7692575.1:2001JUN22	496	498	forward 1	TM	Non-Cytosolic
556	LG:7692575.1:2001JUN22	499	521	forward 1	TM	Transmembrane
556	LG:7692575.1:2001JUN22	522	658	forward 1	TM	Cytosolic
556	LG:7692575.1:2001JUN22	1	522	forward 2	TM	Non-Cytosolic
556	LG:7692575.1:2001JUN22	523	545	forward 2	TM	Transmembrane
556	LG:7692575.1:2001JUN22	546	658	forward 2	TM	Cytosolic
556	LG:7692575.1:2001JUN22	1	20	forward 3	TM	Cytosolic
556	LG:7692575.1:2001JUN22	21	43	forward 3	TM	Transmembrane
556	LG:7692575.1:2001JUN22	44	196	forward 3	TM	Non-Cytosolic
556	LG:7692575.1:2001JUN22	197	219	forward 3	TM	Transmembrane
556	LG:7692575.1:2001JUN22	220	319	forward 3	TM	Cytosolic
556	LG:7692575.1:2001JUN22	320	342	forward 3	TM	Transmembrane
556	LG:7692575.1:2001JUN22	343	425	forward 3	TM	Non-Cytosolic
556	LG:7692575.1:2001JUN22	426	448	forward 3	TM	Transmembrane
556	LG:7692575.1:2001JUN22	449	482	forward 3	TM	Cytosolic
556	LG:7692575.1:2001JUN22	483	505	forward 3	TM	Transmembrane
556	LG:7692575.1:2001JUN22	506	657	forward 3	TM	Non-Cytosolic
557 557	LG:7692742.1:2001JUN22	1	25	forward 1	TM	Non-Cytosolic
557 557	LG:7692742.1:2001JUN22	26	45 56	forward 1 forward 1	TM	Transmembrane
557 557	LG:7692742.1:2001JUN22	46	56 79	forward 1	TM TM	Cytosolic Transmembrane
557 557	LG:7692742.1:2001JUN22	57 80	227	forward 1	TM	Non-Cytosolic
557 557	LG:7692742.1:2001JUN22 LG:7692742.1:2001JUN22	1	30	forward 3	TM	Cytosolic
557 557	LG:7692742.1:2001JUN22	31	53	forward 3	TM	Transmembrane
557 557	LG:7692742.1:2001JUN22	54	226	forward 3	TM	Non-Cytosolic
558	LG:7693942.1:2001JUN22	1	6	forward 1	TM	Cytosolic
558	LG:7693942.1:2001JUN22	7	26	forward 1	TM	Transmembrane
558	LG:7693942.1:2001JUN22	27	787	forward 1	TM	Non-Cytosolic
558	LG:7693942.1:2001JUN22	1	19	forward 2	TM	Non-Cytosolic
558	LG:7693942.1:2001JUN22	20	42	forward 2	TM	Transmembrane
558	LG:7693942.1:2001JUN22	43	372	forward 2	TM	Cytosolic
558	LG:7693942.1:2001JUN22	373	395	forward 2	TM	Transmembrane
550	20.70707 12.1.20013 01122	515	ررد	20. maiu 2	AATA	

396 473 forward 2

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TM

Non-Cytosolic

558 LG:7693942.1:2001JUN22

		TABL	E 2			
SEQ D NO:	Template ID	Start	Stop	Frame	Domain Type	Topology
558	LG:7693942.1:2001JUN22	474	496	forward 2	TM	Transmembrane
558	LG:7693942.1:2001JUN22	497	507	forward 2	TM	Cytosolic
558	LG:7693942.1:2001JUN22	508	530	forward 2	TM	Transmembrane
558	LG:7693942.1:2001JUN22	531	556	forward 2	TM	Non-Cytosolic
558	LG:7693942.1:2001JUN22	557	579	forward 2	TM	Transmembrane
558	LG:7693942.1:2001JUN22	580	787	forward 2	TM	Cytosolic
559	LG:899248.22:2001JUN22	1	72	forward 1	TM	Cytosolic
559	LG:899248.22:2001JUN22	73	95	forward 1	TM	Transmembrane
559	LG:899248.22:2001JUN22	96	986	forward 1	TM	Non-Cytosolic
560	LG:979051.25:2001JUN22	1	867	forward 1	TM	Non-Cytosolic
560	LG:979051.25:2001JUN22	868	890	forward 1	TM	Transmembrane
560	LG:979051.25:2001JUN22	891	1143	forward 1	TM	Cytosolic
560	LG:979051.25:2001JUN22	1144	1166	forward 1	TM	Transmembrane
560	LG:979051.25:2001JUN22	1167	1703	forward 1	TM	Non-Cytosolic
560	LG:979051.25:2001JUN22	1	40	forward 2	TM	Cytosolic
560	LG:979051.25:2001JUN22	41	63	forward 2	TM	Transmembrane
560	LG:979051.25:2001JUN22	64	77	forward 2	TM	Non-Cytosolic
560	LG:979051.25:2001JUN22	78	100	forward 2	TM	Transmembrane
560	LG:979051.25:2001JUN22	101	120	forward 2	TM	Cytosolic
560	LG:979051.25:2001JUN22	121	143	forward 2	TM	Transmembrane
560	LG:979051.25:2001JUN22	144	911	forward 2	TM	Non-Cytosolic
560	LG:979051.25:2001JUN22	912	931	forward 2	TM	Transmembrane
560	LG:979051.25:2001JUN22	932	1143	forward 2	TM	Cytosolic
560	LG:979051.25:2001JUN22	1144	1166	forward 2	TM	Transmembrane
560	LG:979051.25:2001JUN22	1167	1703	forward 2	TM	Non-Cytosolic
561	LG:979054.18:2001JUN22	1	388	forward 1	TM	Non-Cytosolic
561	LG:979054.18:2001JUN22	389	411	forward 1	TM	Transmembrane
561	LG:979054.18:2001JUN22	412	412	forward 1	TM	Cytosolic '
561	LG:979054.18:2001JUN22	413	435	forward 1	TM	Transmembrane
561	LG:979054.18:2001JUN22	436	1047	forward 1	TM	Non-Cytosolic
561	LG:979054.18:2001JUN22	1	388	forward 2	TM	Non-Cytosolic
561	LG:979054.18:2001JUN22	389	411	forward 2	TM	Transmembrane
561	LG:979054.18:2001JUN22	412	417	forward 2	TM	Cytosolic
561	LG:979054.18:2001JUN22	418	440	forward 2	TM	Transmembrane
561	LG:979054.18:2001JUN22	441	1047	forward 2	TM	Non-Cytosolic
562	LG:979415.1:2001JUN22	1	63	forward 1	TM	Cytosolic
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562	LG:979415.1:2001JUN22	87	95	forward 1	TM	Non-Cytosolic
562	LG:979415.1:2001JUN22	96	118	forward 1	TM	Transmembrane
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562	LG:979415.1:2001JUN22	302	371	forward 1	TM	Non-Cytosolic
562	LG:979415.1:2001JUN22	372	394	forward 1	TM	Transmembrane
562	LG:979415.1:2001JUN22	395	406	forward 1	TM	Cytosolic
562	LG:979415.1:2001JUN22	407	429	forward 1	TM	Transmembrane
562	LG:979415.1:2001JUN22	430	452	forward 1	TM	Non-Cytosolic
562	LG:979415.1:2001JUN22	453	472	forward 1	TM	Transmembrane
562	LG:979415.1:2001JUN22	473	569	forward 1	TM	Cytosolic
562	LG:979415.1:2001JUN22	570	592	forward 1	TM	Transmembrane
562	LG:979415.1:2001JUN22	593	1665	forward 1	TM	Non-Cytosolic
562	LG:979415.1:2001JUN22	1	20	forward 2	TM	Cytosolic
562	LG:979415.1:2001JUN22	21	43	forward 2	TM	Transmembrane
562	LG:979415.1:2001JUN22	44	108	forward 2	TM	Non-Cytosolic
562	LG:979415.1:2001JUN22	109	128	forward 2	TM	Transmembrane
		244				

		TABI	.E 2			
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562	LG:979415.1:2001JUN22	477	1665	forward 2	TM	Non-Cytosolic
562	LG:979415.1:2001JUN22	1	20	forward 3	TM	Cytosolic
562	LG:979415.1:2001JUN22	21	43	forward 3	TM	Transmembrane
562	LG:979415.1:2001JUN22	44	71	forward 3	TM	Non-Cytosolic
562	LG:979415.1:2001JUN22	72	91	forward 3	TM	Transmembrane
562	LG:979415.1:2001JUN22	92	157	forward 3	TM	Cytosolic
562	LG:979415.1:2001JUN22	158	177	forward 3	TM	Transmembrane
562	LG:979415.1:2001JUN22	178	1665	forward 3	TM	Non-Cytosolic
563	LG:980685.1:2001JUN22	1	1193	forward 2	TM	Non-Cytosolic
563	LG:980685.1:2001JUN22	1194	1216	forward 2	TM	Transmembrane
563	LG:980685.1:2001JUN22	1217	1228	forward 2	TM	Cytosolic
563	LG:980685.1:2001JUN22	1229	1251	forward 2	TM	Transmembrane
563	LG:980685.1:2001JUN22	1252	1286	forward 2	TM	Non-Cytosolic
563	LG:980685.1:2001JUN22	1287	1309	forward 2	TM	Transmembrane
563	LG:980685.1:2001JUN22	1310	1390	forward 2	TM	Cytosolic
563	LG:980685.1:2001JUN22	1	587	forward 3	TM	Non-Cytosolic
563	LG:980685.1:2001JUN22	588	610	forward 3	TM	Transmembrane
563	LG:980685.1:2001JUN22	611	616	forward 3	TM	Cytosolic
563	LG:980685.1:2001JUN22	617	639	forward 3	TM	Transmembrane
563	LG:980685.1:2001JUN22	640	1389	forward 3	TM	Non-Cytosolic
564	LG:981272.6:2001JUN22	1	25	forward 1	TM	Cytosolic
564	LG:981272.6:2001JUN22	26	48	forward 1	TM	Transmembrane
564	LG:981272.6:2001JUN22	49	115	forward 1	TM	Non-Cytosolic
	LG:981272.6:2001JUN22	116	138	forward 1	· TM	Transmembrane
	LG:981272.6:2001JUN22	139	157	forward 1	TM	Cytosolic
564	LG:981272.6:2001JUN22	158	177	forward 1	TM	Transmembrane
564	LG:981272.6:2001JUN22:	178	448	forward 1	TM	Non-Cytosolic
564	LG:981272.6:2001JUN22	449	471	forward 1	TM	Transmembrane
564	LG:981272.6:2001JUN22	472	504	forward 1	TM	Cytosolic
564	LG:981272.6:2001JUN22	1	36 50	forward 2	TM	Non-Cytosolic
564	LG:981272.6:2001JUN22	37	59	forward 2	TM	Transmembrane
564	LG:981272.6:2001JUN22	60	133 156	forward 2	TM	Cytosolic
564	LG:981272.6:2001JUN22	134	504	forward 2 forward 2	TM	Transmembrane
564	LG:981272.6:2001JUN22	157 1	304 40	forward 3	TM TM	Non-Cytosolic
564	LG:981272.6:2001JUN22 LG:981272.6:2001JUN22	41	63	forward 3	TM	Non-Cytosolic Transmembrane
564 564	LG:981272.6:2001JUN22	64	114	forward 3	TM	Cytosolic
564	LG:981272.6:2001JUN22	115	137	forward 3	TM	Transmembrane
564	LG:981272.6:2001JUN22	138	182	forward 3	TM	Non-Cytosolic
564	LG:981272.6:2001JUN22	183	205	forward 3	TM	Transmembrane
564	LG:981272.6:2001JUN22	206	442	forward 3	TM	Cytosolic
564	LG:981272.6:2001JUN22	443	465	forward 3	TM	Transmembrane
564	LG:981272.6:2001JUN22	466	504	forward 3	TM	Non-Cytosolic
565	LG:982723.4:2001JUN22	1	118	forward 1	TM	Cytosolic
565	LG:982723.4:2001JUN22	119	141	forward 1	TM	Transmembrane
565	LG:982723.4:2001JUN22	142	185	forward 1	TM	Non-Cytosolic
565	LG:982723.4:2001JUN22	186	208	forward 1	TM	Transmembrane
565	LG:982723.4:2001JUN22	209	363	forward 1	TM	Cytosolic
565	LG:982723.4:2001JUN22	364	386	forward 1	TM	Transmembrane
565	LG:982723.4:2001JUN22	387	769	forward 1	TM	Non-Cytosolic
565	LG:982723.4:2001JUN22	1	116	forward 2	TM	Cytosolic
565	LG:982723.4:2001JUN22	117	139	forward 2	TM	Transmembrane
505		245		D	-474	

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565	LG:982723.4:2001JUN22	210	304	forward 2	TM	Cytosolic
565	LG:982723.4:2001JUN22	305	327	forward 2	TM	Transmembrane
565	LG:982723.4:2001JUN22	328	362	forward 2	TM	Non-Cytosolic
565	LG:982723.4:2001JUN22	363	385	forward 2	TM	Transmembrane
565	LG:982723.4:2001JUN22	386	477	forward 2	TM	Cytosolic
565	LG:982723.4:2001JUN22	478	497	forward 2	TM	Transmembrane
565	LG:982723.4:2001JUN22	498	769	forward 2	TM	Non-Cytosolic
565	LG:982723.4:2001JUN22	1	184	forward 3	TM	Cytosolic
565	LG:982723.4:2001JUN22	185	207	forward 3	TM	Transmembrane
565	LG:982723.4:2001JUN22	208	769	forward 3	TM	Non-Cytosolic
566	LG:982915.8:2001JUN22	1	2391	forward 2	TM	Non-Cytosolic
566	LG:982915.8:2001JUN22	2392	2414	forward 2	TM	Transmembrane
566	LG:982915.8:2001JUN22	2415	2420	forward 2	TM	Cytosolic
566	LG:982915.8:2001JUN22	2421	2443	forward 2	TM	Transmembrane
566	LG:982915.8:2001JUN22	2444	2462	forward 2	TM	Non-Cytosolic
566	LG:982915.8:2001JUN22	2463	2485	forward 2	TM	Transmembrane
566	LG:982915.8:2001JUN22	2486	2493	forward 2	TM	Cytosolic
566	LG:982915.8:2001JUN22	2494	2516	forward 2	TM	Transmembrane
566	LG:982915.8:2001JUN22	2517	2527	forward 2	TM	Non-Cytosolic
567	LG:987785.10:2001JUN22	407	499	forward 2	SP	
567	LG:987785.10:2001JUN22	407	499	forward 2	SP	
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567	LG:987785:10:2001JUN22	467	489	forward 1	TM	Transmembrane
567	LG:987785.10:2001JUN22	490	687	forward 1	TM	Cytosolic
567	LG:987785:10:2001JUN22	688	710	forward 1	TM	Transmembrane
567	LG:987785.10:2001JUN22	711	911	forward 1	TM	Non-Cytosolic
567	LG:987785.10:2001JUN22	1	338	forward 2	TM	Non-Cytosolic
567	LG:987785.10:2001JUN22	339	361	forward 2	TM	Transmembrane
567	LG:987785.10:2001JUN22	362	476	forward 2	TM	Cytosolic
567	LG:987785.10:2001JUN22	477	499	forward 2	TM	Transmembrane
567	LG:987785.10:2001JUN22 .	500	911	forward 2	TM	Non-Cytosolic
567	LG:987785.10:2001JUN22	1	466	forward 3	TM	Non-Cytosolic
567	LG:987785.10:2001JUN22	467	489	forward 3	TM	Transmembrane
567	LG:987785.10:2001JUN22	490	603	forward 3	TM	Cytosolic
567	LG:987785.10:2001JUN22	604	626	forward 3	TM	Transmembrane
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567	LG:987785.10:2001JUN22	688	710	forward 3	TM	Transmembrane
567	LG:987785.10:2001JUN22	711	769	forward 3	TM	Cytosolic
567	LG:987785.10:2001JUN22	770	792	forward 3	TM	Transmembrane
<i>5</i> 67	LG:987785.10:2001JUN22	793	910	forward 3	. <b>TM</b>	Non-Cytosolic

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# Table 3

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Tissue Distribution	Male Genitalia - 13%	Unclassified/Mixed - 70%, Digestive System - 20%, Hemic and Immune System - 10%	Respiratory System - 63%, Hemic and Immune System - 38%	Nervous System - 35%, Germ Cells - 16%, Respiratory System - 14%	Liver - 31%, Cardiovascular System - 24%, Nervous System - 21%	Urinary Tract - 37%, Respiratory System - 15%, Unclassified/Mixed - 13%	Germ Cells - 24%	Skin - 23%, Female Genitalia - 22%, Embryonic Structures - 15%	Connective Tissue - 27%, Embryonic Structures - 17%, Urinary Tract - 13%, Respiratory System - 13%,	Unclassified/Mixed - 13%	Unclassified/Mixed - 20%, Exocrine Glands - 12%, Respiratory System - 10%	Germ Cells - 14%, Stomatognathic System - 11%	Germ Cells - 61%, Musculoskeletal System - 17%, Endocrine System - 11%, Nervous System - 11%	Connective Tissue - 70%, Male Genitalia - 20%, Hemic and Immune System - 10%	Sense Organs - 39%, Female Genitalia - 13%	Sense Organs - 61%	Skin - 18%	Unclassified/Mixed - 17%, Germ Cells - 16%, Connective Tissue - 10%	Hemic and Immune System - 28%, Endocrine System - 18%, Pancreas - 15%	Germ Cells - 37%, Cardiovascular System - 13%, Hemic and Immune System - 11%, Unclassified/Mixed - 11%	Connective Tissue - 14%, Embryonic Structures - 12%	Skin - 58%, Liver - 25%	Liver - 16%, Nervous System - 13%, Male Genitalia - 13%	Endocrine System - 55%, Nervous System - 39%	Germ Cells - 26%	Liver - 16%, Pancreas - 16%, Exocrine Glands - 14%	Stomatognathic System - 16%, Germ Cells - 15%	Embryonic Structures - 16%	Unclassified/Mixed - 65%, Exocrine Glands - 20%, Respiratory System - 10%	Hemic and Immune System - 26%	Germ Cells - 28%, Respiratory System - 24%	Unclassified/Mixed - 39%, Cardiovascular System - 21%, Musculoskeletal System - 18%
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12017	Tissue Distribution	Hemic and Immune System - 50%, Male Genitalia - 33%, Nervous System - 17%	Exocrine Glands - 16%, Connective Tissue - 14%, Respiratory System - 10%	Unclassified/Mixed - 33%, Digestive System - 17%, Nervous System - 14%	Unclassified/Mixed - 25%, Female Genitalia - 21%, Respiratory System - 13%	Connective Tissue - 37%, Liver - 17%, Embryonic Structures - 17%	Embryonic Structures - 16%		Digestive System - 31%, Liver - 19%, Skin - 11%		Embryonic Structures - 11%	Embryonic Structures - 13%, Female Genitalia - 10%	Connective Tissue - 15%, Cardiovascular System - 11%, Embryonic Structures - 10%	Sense Organs - 19%, Respiratory System - 13%	Embryonic Structures - 13%, Nervous System - 10%	Sense Organs - 21%, Skin - 18%, Exocrine Glands - 12%	Respiratory System - 11%	Endocrine System - 31%, Liver - 17%, Urinary Tract - 13%	widely distributed	Skin - 15%	Unclassified/Mixed - 18%	Unclassified/Mixed - 22%, Nervous System - 13%, Musculoskeletal System - 10%, Digestive System - 10%	Embryonic Structures - 11%	Sense Organs - 34%	Skin - 16%, Pancreas - 11%	Sense Organs - 14%, Unclassified/Mixed - 12%	Unclassified/Mixed - 23%, Skin - 12%, Connective Tissue - 12%	Endocrine System - 19%, Respiratory System - 16%, Urinary Tract - 14%	Liver - 100%	Female Genitalia - 44%, Exocrine Glands - 19%, Respiratory System - 14%	Stomatognathic System - 22%, Sense Organs - 18%	Embryonic Structures - 45%, Liver - 21%, Musculoskeletal System - 14%	Digestive System - 50%, Respiratory System - 50%
	Template ID	LG:1060168.6:2001MAR30	LG:1086906.41:2001MAR30	LG:1089326.18:2001MAR30	LG:1090862.32:2001MAR30	LG:1091941.41:2001MAR30	LG:1093386.8:2001MAR30	LG:1094187.33:2001MAR30	LG:1098692.18:2001MAR30	LG:1173104.22:2001MAR30	LG:1215335.7:2001MAR30	LG:1256753.1:2001MAR30	LG:1326702.10:2001MAR30	LG:1327239.15:2001MAR30	LG:1327867.15:2001MAR30	LG:1383232.1:2001MAR30	LG:1383368.40:2001MAR30	LG:1384477.1:2001MAR30	LG:1390822.1:2001MAR30	LG:1398274.13:2001MAR30	LG:1398646.1:2001MAR30	LG:1398905.1:2001MAR30	LG:1399785.1:2001MAR30	LG:1446193.10:2001MAR30	LG:1446210.8:2001MAR30	LG:1450054.6:2001MAR30	LG:1452516.4:2001MAR30	LG:1455293.7:2001MAR30	LG:1498113.1:2001MAR30	LG:1500042.1:2001MAR30	LG:1500434.4:2001MAR30	LG:1501102.4:2001MAR30	LG:1501768.2:2001MAR30
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- Table 4

Q ID NO:	Template ID	Tissue Distribution
96	LG:1502155.6:2001MAR30	Liver - 24%, Female Genitalia - 24%, Embryonic Structures - 12%
26	LG:1512304.2:2001MAR30	Unclassified/Mixed - 27%, Connective Tissue - 27%, Cardiovascular System - 15%, Endocrine System - 15%
86	LG:1512931.11:2001MAR30	Unclassified/Mixed - 38%, Embryonic Structures - 13%, Urinary Tract - 11%
66	LG:155076.18:2001MAR30	Respiratory System - 13%, Endocrine System - 12%
100	LG:159111.41:2001MAR30	Germ Cells - 15%, Connective Tissue - 10%
101	LG:170604.1:2001MAR30	Respiratory System - 50%, Urinary Tract - 30%, Female Genitalia - 20%
102	LG:190477.4:2001MAR30	Sense Organs - 28%, Unclassified/Mixed - 14%
103	LG:198087.8:2001MAR30	Embryonic Structures - 12%, Unclassified/Mixed - 10%, Nervous System - 10%
104	LG:198743.2:2001MAR30	Unclassified/Mixed - 12%, Nervous System - 11%
105	LG:199194.1:2001MAR30	Sense Organs - 16%, Embryonic Structures - 13%
106	LG:200727.6:2001MAR30	Unclassified/Mixed - 22%, Germ Cells - 12%
107	LG:201572.20:2001MAR30	widely distributed
108	LG:201669.25:2001MAR30	Digestive System - 10%, Pancreas - 10%
109	LG:208588.4:2001MAR30	Digestive System - 100%
110	LG:210412.29:2001MAR30	Respiratory System - 30%, Embryonic Structures - 27%, Musculoskeletal System - 18%
111	LG:215051.15:2001MAR30	Nervous System - 11%, Skin - 10%, Urinary Tract - 10%
112	LG:215475.21:2001MAR30	Embryonic Structures - 20%
113	LG:224523.1:2001MAR30	Respiratory System - 67%, Nervous System - 33%
114	LG:228186.1:2001MAR30	Germ Cells - 17%, Urinary Tract - 11%
115	LG:233138.2:2001MAR30	Cardiovascular System - 15%
116	LG:234811.10:2001MAR30	Liver - 38%
1117	LG:236092.1:2001MAR30	Urinary Tract - 14%, Embryonic Structures - 14%, Germ Cells - 13%
118	LG:236098.12:2001MAR30	Unclassified/Mixed - 11%
119	LG:236697.15:2001MAR30	Sense Organs - 15%
120	LG:237503.21:2001MAR30	Sense Organs - 42%
121	LG:238023.7:2001MAR30	Exocrine Glands - 22%, Unclassified/Mixed - 18%, Nervous System - 15%
122	LG:238209.1:2001MAR30	Skin - 16%
123	LG:238456.10:2001MAR30	Germ Cells - 14%, Endocrine System - 12%, Urinary Tract - 10%
124	LG:239245.1:2001MAR30	Musculoskeletal System - 11%, Sense Organs - 11%
125	LG:239579.8:2001MAR30	Embryonic Structures - 12%, Cardiovascular System - 10%
126	LG:239601.22:2001MAR30	Embryonic Structures - 13%, Unclassified/Mixed - 12%
127	LG:240121.1;2001MAR30	Unclassified/Mixed - 21%, Skin - 16%

D NO:	Template ID	Tissue Distribution
160	LG:428206.7:2001MAR30	Urinary Tract - 28%, Germ Cells - 20%, Unclassified/Mixed - 12%
161	LG:430059.1:2001MAR30	Exocrine Glands - 16%
162	LG:448040.3:2001MAR30	Exocrine Glands - 25%, Urinary Tract - 18%, Endocrine System - 11%, Embryonic Structures - 11%
163	LG:451274.1:2001MAR30	Exocrine Glands - 47%, Embryonic Structures - 26%
164	LG:456110.1:2001MAR30	Nervous System - 100%
165	LG:456954.1:2001MAR30	Nervous System - 100%
166	LG:474942.12:2001MAR30	Cardiovascular System - 31%, Nervous System - 27%, Musculoskeletal System - 21%
167	LG:475119.14:2001MAR30	Germ Cells - 27%, Unclassified/Mixed - 17%, Endocrine System - 16%
168	LG:479908.77:2001MAR30	Exocrine Glands - 50%, Digestive System - 25%, Nervous System - 25%
169	LG:480127.47:2001MAR30	Germ Cells - 21%, Skin - 13%, Urinary Tract - 13%, Connective Tissue - 13%
170	LG:481154.12:2001MAR30	Unclassified/Mixed - 36%, Urinary Tract - 13%
171	LG:481414.6:2001MAR30	Unclassified/Mixed - 20%
172	LG:481941.1:2001MAR30	Nervous System - 61%, Sense Organs - 19%
173	LG:887216.4:2001MAR30	Germ Cells - 84%
174	LG:899402.3:2001MAR30	widely distributed
175	LG:899894.2:2001MAR30	Unclassified/Mixed - 11%, Embryonic Structures - 11%
176	LG:977908.1:2001MAR30	Stomatognathic System - 11%
177	LG:977929.1:2001MAR30	Sense Organs - 39%, Male Genitalia - 11%
178	LG:978008.14:2001MAR30	Germ Cells - 17%, Unclassified Mixed - 13%, Embryonic Structures - 11%
179	LG:979054.18:2001MAR30	Nervous System - 14%, Sense Organs - 12%, Digestive System - 11%, Embryonic Structures - 11%
180	LG:979185.10:2001MAR30	Sense Organs - 38%, Nervous System - 21%
181	LG:983654.1:2001MAR30	Urinary Tract - 32%, Unclassified/Mixed - 20%, Digestive System - 12%
182	LG:985092.12:2001MAR30	Exocrine Glands - 21%, Cardiovascular System - 18%, Unclassified/Mixed - 18%
183	LG:987396.8:2001MAR30	Germ Cells - 30%
184	LG:987418.10:2001MAR30	Germ Cells - 12%, Embryonic Structures - 10%
185	LG:997203.25:2001MAR30	Germ Cells - 20%
186	LG:997477.8:2001MAR30	Male Genitalia - 100%
187	LG:998855.4:2001MAR30	Embryonic Structures - 37%, Exocrine Glands - 16%, Unclassified/Mixed - 14%
188	LG:999093.1:2001MAR30	Germ Cells - 12%
189	LG:999183.1:2001MAR30	Embryonic Structures - 10%
190	LI:1032972.1:2001MAY17	Liver - 15%, Male Genitalia - 11%, Respiratory System - 11%
191	LI:170666.6:2001MAY17	Sense Organs - 97%

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Tissue Distribution	Skin - 16%, Endocrine System - 11%	Unclassified/Mixed - 48%, Pancreas - 23%, Exocrine Glands - 20%	Female Genitalia - 42%, Digestive System - 33%, Hemic and Immune System - 17%	Endocrine System - 26%, Hemic and Immune System - 23%, Digestive System - 23%	Endocrine System - 38%, Male Genitalia - 13%, Female Genitalia - 11%	Exocrine Glands - 56%, Female Genitalia - 22%, Nervous System - 22%	Nervous System - 28%, Connective Tissue - 24%, Endocrine System - 17%	Nervous System - 61%, Skin - 17%, Pancreas - 11%	Urinary Tract - 18%, Nervous System - 15%, Exocrine Glands - 11%	Unclassified/Mixed - 100%	Nervous System - 63%, Urinary Tract - 25%, Female Genitalia - 13%	Respiratory System - 35%, Unclassified/Mixed - 27%, Hemic and Immune System - 16%	Endocrine System - 26%, Musculoskeletal System - 21%, Connective Tissue - 21%	Germ Cells - 30%, Urinary Tract - 14%, Nervous System - 12%	Unclassified/Mixed - 97%	Sense Organs - 41%, Embryonic Structures - 26%	Urinary Tract - 33%, Nervous System - 33%, Hemic and Immune System - 17%, Male Genitalia - 17%	Nervous System - 100%	Connective Tissue - 26%, Male Genitalia - 19%, Exocrine Glands - 19%	Connective Tissue - 100%	Germ Cells - 13%, Nervous System - 11%, Unclassified/Mixed - 11%	Germ Cells - 34%, Endocrine System - 15%, Male Genitalia - 14%	Nervous System - 100%	Sense Organs - 67%, Urinary Tract - 17%, Endocrine System - 11%	Female Genitalia - 43%, Connective Tissue - 32%, Endocrine System - 11%	Skin - 13%, Cardiovascular System - 12%, Embryonic Structures - 11%	Embryonic Structures - 56%, Cardiovascular System - 22%, Hemic and Immune System - 11%, Male Genitalia - 11%	Male Genitalia - 16%, Endocrine System - 13%, Liver - 12%	Nervous System - 57%, Hemic and Immune System - 43%	Urinary Tract - 14%, Unclassified/Mixed - 11%	Respiratory System - 13%, Male Genitalia - 13%, Exocrine Glands - 12%	Germ Cells - 27%, Unclassified/Mixed - 18%, Exocrine Glands - 11%, Endocrine System - 11%
Template ID	LI:197048.10:2001MAY17	LI:228655.5:2001MAY17	LI:229789.6:2001MAY17	LI:231500.8:2001MAY17	LI:253851.26:2001MAY17	LI:373302.1:2001MAY17	LI:405707.12:2001MAY17	LI:411441.8:2001MAY17	LI:758193.3:2001MAY17	LI:1028562.3:2001MAY17	LI:104650.7:2001MAY17	LI:1143528.4:2001MAY17	LI:1172210.7:2001MAY17	LI:1178659.14:2001MAY17	LI:1983726.3:2001MAY17	LI:2051495.3:2001MAY17	LI:2117629.1:2001MAY17	LI:2118007.3:2001MAY17	LI:2118292.9:2001MAY17	LI:2118733.7:2001MAY17	LI:212702.3:2001MAY17	LI:2207871.10:2001MAY17	LI:2207876.5:2001MAY17	LI:2208743.1:2001MAY17	LI:2208744.1:2001MAY17	LI:230905.3:2001MAY17	LI:235233.95:2001MAY17	LI:235359.24:2001MAY17	LJ:238365.6:2001MAY17	LI:321069.2:2001MAY17	LI:331499.8:2001MAY17	LI:332176.8:2001MAY17
SEQ ID NO:	192	193	194	195	196	197	198	199	200	201	202	204	205	206		708 90	209	210	211	212	213	214	215	216	217	218	219	220	221	223	224	225

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- 0101	Tissue Distribution	Respiratory System - 69%, Hemic and Immune System - 31%	widely distributed	Digestive System - 67%, Nervous System - 33%	Cardiovascular System - 47%, Connective Tissue - 41%, Digestive System - 12%	Musculoskeletal System - 19%, Hemic and Immune System - 11%	Exocrine Glands - 45%, Respiratory System - 15%, Hemic and Immune System - 15%	Skin - 100%	Pancreas - 84%	Endocrine System - 40%, Liver - 26%, Respiratory System - 14%, Female Genitalia - 14%	Sense Organs - 40%, Pancreas - 13%	Connective Tissue - 12%, Nervous System - 11%	Cardiovascular System - 25%, Embryonic Structures - 22%, Respiratory System - 12%	Male Genitalia - 100%	Connective Tissue - 18%, Embryonic Structures - 11%	Germ Cells - 25%, Connective Tissue - 23%	Unclassified/Mixed - 39%, Exocrine Glands - 24%, Female Genitalia - 18%	Embryonic Structures - 70%	Germ Cells - 33%	Female Genitalia - 78%, Digestive System - 22%	Respiratory System - 18%, Female Genitalia - 12%	Endocrine System - 37%, Liver - 18%, Nervous System - 15%	Liver - 15%, Nervous System - 11%	Hemic and Immune System - 17%, Connective Tissue - 14%, Pancreas - 10%	Skin - 17%, Pancreas - 11%	Germ Cells - 13%	Skin - 15%, Urinary Tract - 11%, Hemic and Immune System - 11%	Musculoskeletal System - 30%, Respiratory System - 28%, Endocrine System - 20%	Skin - 13%, Hemic and Immune System - 12%	Urinary Tract - 28%, Unclassified/Mixed - 17%, Nervous System - 12%	Embryonic Structures - 27%, Respiratory System - 18%	widely distributed	Liver - 15%
	Template ID	LI:333952.7:2001MAY17	LI:343869.2:2001MAY17	LI:363532.1:2001MAY17	LI:416650.1:2001MAY17	LI:444767.32:2001MAY17	LI:759073.1:2001MAY17	LI:759902.4:2001MAY17	LI:762268.1:2001MAY17	LI:813699.1:2001MAY17	LI:024142.16:2001MAY17	LI:1018424.4:2001MAY17	LI:1085250.6:2001MAY17	LI:2207125.3:2001MAY17	LI:235153.44:2001MAY17	LI:007101.10:2001MAY17	LI:008541.2:2001MAY17	LI:009658.13:2001MAY17	LI:020012.14:2001MAY17	LI:020691.1:2001MAY17	LI:021188.12:2001MAY17	LI:021324.4:2001MAY17	LI:021834.15:2001MAY17	LI:024841.1:2001MAY17	LI:025724.12:2001MAY17	LI:029328.2:2001MAY17	LI:032171.5:2001MAY17	LI:035055.1:2001MAY17	LI:036747.17:2001MAY17	LI:044301.2:2001MAY17	LI:061585.10:2001MAY17		LI:075492.206:2001MAY17
	SEQ ID NO:	226	228	229	231	232	233	234	235	236	237	238	239	241	242		544 01	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260

Table 4	Tissue Distribution	7 Musculoskeletal System - 39%, Exocrine Glands - 28%, Cardiovascular System - 22%	17 Germ Cells - 52%, Endocrine System - 23%	17 Exocrine Glands - 29%, Digestive System - 24%, Urinary Tract - 24%	IAY17 Endocrine System - 10%	IAY17 Embryonic Structures - 13%	17 Urinary Tract - 86%, Digestive System - 14%	17 Pancreas - 37%, Unclassified/Mixed - 12%	Y17 Digestive System - 75%, Female Genitalia - 25%	17 Urinary Tract - 18%, Exocrine Glands - 14%, Female Genitalia - 11%	17 Urinary Tract - 12%, Embryonic Structures - 10%		7 Endocrine System - 14%, Unclassified/Mixed - 11%, Embryonic Structures - 10%	17 Germ Cells - 18%, Skin - 16%		17 Endocrine System - 45%, Digestive System - 18%, Hemic and Immune System - 18%, Nervous System - 18%	1AY17 Liver - 90%, Nervous System - 10%	17 Connective Tissue - 100%	fAY17 Embryonic Structures - 38%, Musculoskeletal System - 36%	17 Germ Cells - 46%, Respiratory System - 12%	IAY17 Hemic and Immune System - 100%	17 Germ Cells - 61%	.7 Unclassified/Mixed - 42%, Urinary Tract - 33%, Hemic and Immune System - 17%	.7 Urinary Tract - 33%, Hemic and Immune System - 25%, Nervous System - 25%		7 Pancreas - 45%, Endocrine System - 41%, Hemic and Immune System - 14%	.7 Urinary Tract - 28%, Nervous System - 21%, Exocrine Glands - 15%	17 Embryonic Structures - 18%, Sense Organs - 14%, Hemic and Immune System - 12%			17 Unclassified/Mixed - 71%, Digestive System - 29%		17 Germ Cells - 23%, Unclassified/Mixed - 22%, Digestive System - 10%
	Template ID	LI:090782.3:2001MAY17	LI:1031308.1:2001MAY17	LI:1054377.1:2001MAY17	LI:1072074.10:2001MAY	LI:1072889.15:2001MAY	LI:1077480.1:2001MAY17	LI:1079555.1:2001MAY17	LI:1084992.28:2001MAY17	LI:1085472.5:2001MAY17	LI:1086800.7:2001MAY17	LI:1089871.9:2001MAY17	LI:110297.6:2001MAY17	LI:1143463.8:2001MAY17	LI:1144466.1:2001MAY17	LI:1170624.2:2001MAY17	LI:1171602.39:2001MAY	LI:1182361.3:2001MAY17	LI:1188194.15:2001MAY	LI:1189195.7:2001MAY17	LI:1190092.13:2001MAY	LI:1190318.4:2001MAY17	LI:144233.1:2001MAY17	LI:154608.1:2001MAY17	LI:170101.1:2001MAY17	LI:180043.1:2001MAY17	LI:193050.1:2001MAY17	LI:197477.31:2001MAY17	LI:199639.12:2001MAY17	LI:200058.6:2001MAY17	LI:201374.23:2001MAY17	LI:201824.1:2001MAY17	LI:201989.11:2001MAY17
	SEQ ID NO:	261	262	263	264	265	566	267	268	269	270	271	272	273	274	512	= 276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292

F 2005	Tissue Distribution	Pancreas - 71%, Female Genitalia - 14%, Male Genitalia - 14%	Skin - 29%, Endocrine System - 16%, Urinary Tract - 15%	Stomatognathic System - 30%, Endocrine System - 13%, Sense Organs - 13%	Embryonic Structures - 25%, Germ Cells - 19%	Liver - 24%, Embryonic Structures - 13%, Respiratory System - 12%	Male Genitalia - 100%	Sense Organs - 82%	Liver - 47%, Digestive System - 21%, Respiratory System - 16%	Unclassified/Mixed - 15%, Germ Cells - 15%	Germ Cells - 15%, Female Genitalia - 12%	Musculoskeletal System - 20%, Pancreas - 14%, Liver - 13%	Stomatognathic System - 58%, Embryonic Structures - 16%	Germ Cells - 51%, Pancreas - 12%	Sense Organs - 36%, Unclassified/Mixed - 12%, Pancreas - 12%	Skin - 76%, Endocrine System - 24%	Unclassified/Mixed - 13%, Female Genitalia - 11%, Embryonic Structures - 11%	Exocrine Glands - 14%, Musculoskeletal System - 11%	Hemic and Immune System - 100%	Digestive System - 100%	Male Genitalia - 100%	Unclassified/Mixed - 100%	Male Genitalia - 100%	Urinary Tract - 28%, Endocrine System - 11%, Male Genitalia - 10%	Female Genitalia - 49%, Respiratory System - 18%, Exocrine Glands - 12%	Nervous System - 100%	Respiratory System - 19%, Endocrine System - 19%, Exocrine Glands - 19%	Embryonic Structures - 12%, Liver - 11%	Liver - 64%, Respiratory System - 21%, Hemic and Immune System - 14%	Embryonic Structures - 29%, Skin - 24%, Musculoskeletal System - 15%	Nervous System - 100%	Stomatognathic System - 21%, Embryonic Structures - 11%	Exocrine Glands - 23%, Urinary Tract - 20%, Nervous System - 20%
	Template ID	LI:2035159.1:2001MAY17	LI:204818.10:2001MAY17	LI:2048337.1:2001MAY17	LI:2049697.4:2001MAY17	LI:2050808.19:2001MAY17	LI:209773.25:2001MAY17	LI:2117881.32:2001MAY17	LI:2118140.9:2001MAY17	LI:2118151.15:2001MAY17	LI:2118324.9:2001MAY17	LI:2118368.12:2001MAY17	LI:2119448.5;2001MAY17	LI:212023.7:2001MAY17	LI:2120556.1:2001MAY17	LI:2121577.3:2001MAY17	LI:2123395.11:2001MAY17	LI:2123452.9:2001MAY17	LI:2164109.1:2001MAY17	LI:2168320.1:2001MAY17	LI:2173577.1:2001MAY17	LI:2179256.1:2001MAY17	LI:2180388.1:2001MAY17	LI:2199713.8:2001MAY17	LI:2200587.2:2001MAY17	LI:2200761.12:2001MAY17	LI:2203624.1:2001MAY17	LI:220495.9:2001MAY17	LI:2205532.1:2001MAY17	LI:2206277.1:2001MAY17	LI:2208404.4:2001MAY17	LI:2208766.2:2001MAY17	LI:2209636.3:2001MAY17
	SEQ ID NO:	293	294	295	296	297	298	299	300	301	302	303	304	305	306		80E 12	309	310	311	312	313	314	315	316	317	318	319	320	321	323	325	326

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QID NO:		Tissue Distribution
362	LI:337038.15:2001MAY17	Germ Cells - 19%
363	LI:337606.6:2001MAY17	Germ Cells - 77%
364	LI:338032.10:2001MAY17	Nervous System - 100%
365	LI:339265.16:2001MAY17	Germ Cells - 29%, Nervous System - 17%, Urinary Tract - 13%
366	LI:344646.4:2001MAY17	Sense Organs - 23%, Connective Tissue - 12%, Respiratory System - 11%, Unclassified/Mixed - 11%
367	LI:347393.7:2001MAY17	Embryonic Structures - 24%, Cardiovascular System - 20%, Connective Tissue - 17%
369	LI:351120.6:2001MAY17	widely distributed
370	LI:358762.41:2001MAY17	Cardiovascular System - 40%, Endocrine System - 19%, Embryonic Structures - 13%
371	LI:363003.48:2001MAY17	Male Genitalia - 15%
372	LI:370899.6:2001MAY17	Embryonic Structures - 14%, Skin - 13%, Unclassified/Mixed - 12%
373	LI:376470.1:2001MAY17	Hemic and Immune System - 100%
374	LI:400961.18:2001MAY17	Skin - 16%, Embryonic Structures - 13%
375	LI:404482.20:2001MAY17	Hemic and Immune System - 13%, Connective Tissue - 11%, Exocrine Glands - 11%
376	LI:405985.1:2001MAY17	Nervous System - 69%, Female Genitalia - 31%
377	LI:406389.1:2001MAY17	Embryonic Structures - 44%, Nervous System - 24%, Respiratory System - 11%, Male Genitalia - 11%
378	LI:406833.1:2001MAY17	Musculoskeletal System - 16%, Unclassified/Mixed - 15%, Urinary Tract - 10%
379	LI:407921.3:2001MAY17	Germ Ceils - 29%
380	LI:409078.54:2001MAY17	Male Genitalia - 24%, Skin - 20%, Liver - 11%
381	LI:423601.6:2001MAY17	Hemic and Immune System - 21%, Musculoskeletal System - 13%, Connective Tissue - 13%
382	LI:425024.5:2001MAY17	Skin - 31%, Pancreas - 19%, Exocrine Glands - 17%
383	LI:427909.29:2001MAY17	Stomatognathic System - 10%
384	LI:428198.20:2001MAY17	Digestive System - 17%, Male Genitalia - 15%, Urinary Tract - 14%
385	LI:429738.6:2001MAY17	Nervous System - 45%, Respiratory System - 27%, Hemic and Immune System - 27%
386	LI:449437.1:2001MAY17	Female Genitalia - 50%, Hemic and Immune System - 50%
387	LI:459269.25:2001MAY17	Sense Organs - 16%, Digestive System - 11%, Nervous System - 11%, Connective Tissue - 11%
388	LI:464206.1:2001MAY17	Germ Cells - 20%, Connective Tissue - 13%, Endocrine System - 13%
389	LI:465821.2:2001MAY17.	Liver - 16%, Musculoskeletal System - 12%
390	LI:474414.28:2001MAY17	Embryonic Structures - 12%
391	LI:474435.14:2001MAY17	Germ Celis - 10%
392	LI:474458.11:2001MAY17	widely distributed
393	LI:477127.18:2001MAY17	Hemic and Immune System - 13%
394	LI:480375.55:2001MAY17	Germ Cells - 14%, Digestive System - 12%

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te ID Tissue Distribution	MAY17 Skin - 34%, Connective Tissue - 16%, Nervous System - 11%	MAY17 widely distributed	MAY17 Sense Organs - 16%	MAY17 Exocrine Glands - 16%	11MAY17 Embryonic Structures - 14%, Unclassified/Mixed - 12%	MAY17 Pancreas - 14%, Hemic and Immune System - 11%, Urinary Tract - 10%	.MAY17 Germ Cells - 13%	Musculoskeletal System - 30%, Endocrine System - 20%, Connective Tissue - 15%	IMAY17 Pancreas - 26%, Respiratory System - 13%, Unclassified/Mixed - 13%, Exocrine Glands - 13%	.MAY17 Embryonic Structures - 28%, Male Genitalia - 28%, Urinary Tract - 22%	MAY17 widely distributed	MAY17 Hemic and Immune System - 13%, Unclassified/Mixed - 12%	MAY17 Sense Organs - 15%, Connective Tissue - 13%	MAY17 Sense Organs - 15%, Exocrine Glands - 11%	MAY17	1JUN22 Unclassified/Mixed - 24%, Respiratory System - 18%, Embryonic Structures - 16%, Male Genitalia - 16%	1JUN22 Germ Cells - 13%, Female Genitalia - 11%, Liver - 10%	01JUN22 Stomatognathic System - 16%, Germ Cells - 14%, Female Genitalia - 10%	1JUN22	:001JUN22 Germ Cells - 23%, Urinary Tract - 12%, Connective Tissue - 11%	01JUN22 Sense Organs - 15%, Embryonic Structures - 11%	1JUN22 Unclassified/Mixed - 60%, Exocrine Glands - 19%, Urinary Tract - 17%	01JUN22 Embryonic Structures - 43%, Hemic and Immune System - 14%, Nervous System - 14%	01JUN22 Musculoskeletal System - 27%, Liver - 20%, Exocrine Glands - 18%	1JUN22	11UN22 Endocrine System - 33%, Unclassified/Mixed - 22%, Female Genitalia - 15%, Cardiovascular System - 15%	001JUN22 Unclassified/Mixed - 76%, Cardiovascular System - 24%	001JUN22 Sense Organs - 100%	1JUN22 Embryonic Structures - 15%, Urinary Tract - 15%, Cardiovascular System - 12%	01ЛUN22 Germ Cells - 13%	01JUN22 Unclassified/Mixed - 55%, Female Genitalia - 36%	001 II 1N22 Fractine Glands - 100%
Template ID	LI:480467.24:2001	LI:480587.1:2001N	LI:480798.13:2001	LI:481203.14:2001	LI:481237.11:2001	LI:481368.12:2001	LI:482301.8:2001N	LI:482482.29:2001	LI:758877.26:2001	LI:791042.1:2001N	LI:808999.26:2001	LI:815715.10:2001	LI:902980.16:2001	LI:903196.25:2001	LI:903914.10:2001	LG:006764.2:2001	LG:014704.8:2001	LG:1447607.7:200	LG:1455032.3:200	LG:1501898.18:200	LG:1502692.5:200	LG:208949.8:2001	LG:240501.10:200	LG:329228.27:200	LG:337056.11:200	LG:346663.9:2001	LG:7685586.2:200	LG:407730.13:200	LG:025465.5:2001	LG:054509.14:200	LG:1067876.1:200	LG:1327699.55:20
SEQ ID NO:	395	396	397	398	399	400	401	402	403	404	405	406	407	408		15	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426

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Template ID LG:1482904.10:2001JUN22

SEQ ID NO:

Tissue Distribution

427 428 429 430 431 433 434 436 436 438 439	LG:1482904.10:2001JUN22 LG:222317.4:2001JUN22 LG:369881.5:2001JUN22 LG:4064381.2:2001JUN22 LG:405709.2:2001JUN22 LG:406664.17:2001JUN22 LG:7670681.1:2001JUN22 LG:768709.2:2001JUN22 LG:768709.2:2001JUN22 LG:7690030.24:2001JUN22 LG:7690233.16:2001JUN22 LG:7690233.16:2001JUN22 LG:7690233.16:2001JUN22	Embryonic Structures - 13%, Female Genitalia - 11% Female Genitalia - 50%, Digestive System - 50% Unclassified/Mixed - 14% Skin - 51%, Unclassified/Mixed - 23% Endocrine System - 24%, Pancreas - 24%, Nervous System - 21% Endocrine System - 39%, Connective Tissue - 30%, Hemic and Immune System - 100% Musculoskeletal System - 100% Musculoskeletal System - 100% Female Genitalia - 40%, Endocrine System - 40%, Digestive System - 20% Hemic and Immune System - 100% Unclassified/Mixed - 86%, Nervous System - 14% Pancreas - 30%, Musculoskeletal System - 20%, Male Genitalia - 20% Unclassified/Mixed - 53%, Pancreas - 19%
440 441 443 444 444 444 447 449 450 451 452 453 454 454 455	LG:7692559.6:2001JUN22 LG:7684866.10:2001JUN22 LG:0002106.5:2001JUN22 LG:004064.1:2001JUN22 LG:007916.8:2001JUN22 LG:007916.8:2001JUN22 LG:01763.31:2001JUN22 LG:025397.1:2001JUN22 LG:029880.20:2001JUN22 LG:029880.20:2001JUN22 LG:040422.37:2001JUN22 LG:040422.37:2001JUN22 LG:074381.1:2001JUN22 LG:074381.1:2001JUN22 LG:093750.2:2001JUN22 LG:093750.2:2001JUN22 LG:103708.26:2001JUN22 LG:1032283.8:2001JUN22 LG:1032283.8:2001JUN22 LG:1022283.8:2001JUN22	Musculoskeletal System - 55%, Endocrine System - 36% Female Genitalia - 100% Musculoskeletal System - 28%, Liver - 21%, Respiratory System - 16% Musculoskeletal System - 28%, Liver - 21%, Hemic and Immune System - 10% Female Genitalia - 32%, Liver - 26%, Digestive System - 12%, Endocrine System - 12% Skin - 16%, Nervous System - 14%, Pemale Genitalia - 12% Urinary Tract - 17%, Male Genitalia - 14%, Cardiovascular System - 13% Uniary Tract - 17%, Male Genitalia - 14%, Cardiovascular System - 13% Musculoskeletal System - 31%, Sense Organs - 14%, Bedocrine System - 13% Germ Cells - 18%, Unclassified/Mixed - 13%, Sense Organs - 12% Unclassified/Mixed - 21%, Female Genitalia - 12%, Germ Cells - 11%, Endocrine System - 11% Embryonic Structures - 15% Digestive System - 100% Connective Tissue - 33%, Female Genitalia - 19%, Urinary Tract - 14% Skin - 27%, Unclassified/Mixed - 16%, Embryonic Structures - 12% Skin - 11% Urinary Tract - 83%, Digestive System - 17% Liver - 47%, Cardiovascular System - 21%, Endocrine System - 21%

Template ID 3303.1:2001JUN22 Embryonic Structures - 21%, Connective Tissue - 15%, Nervous System - 11%		9249.19:2001JUN22 Connective Tissue - 22%, Unclassified/Mixed - 21%, Urinary Tract - 15%	667.1:2001JUN22 Liver - 38%, Nervous System - 29%, Respiratory System - 21%	2386.20:2001JUN22 Nervous System - 13%, Embryonic Structures - 11%, Sense Organs - 11%	015.2:2001JUN22 Sense Organs - 21%, Germ Cells - 15%	3104.15:2001JUN22 Liver - 15%, Female Genitalia - 12%, Embryonic Structures - 11%	5109.14:2001JUN22 Germ Cells - 16%, Cardiovascular System - 14%, Connective Tissue - 12%	477.11:2001JUN22 Sense Organs - 21%, Germ Cells - 11%	3618.1:2001JUN22 Female Genitalia - 50%, Respiratory System - 50%	7760.16.2001JUN22 Connective Tissue - 14%, Embryonic Structures - 13%, Nervous System - 12%	3039.369:2001JUN22 Embryonic Structures - 64%, Hemic and Immune System - 21%, Digestive System - 14%	3313.3:2001JUN22 Germ Cells - 18%, Nervous System - 16%	4075.8:2001JUN22 Unclassified/Mixed - 25%	4155.1:2001JUN22 Embryonic Structures - 13%	5280.12:2001JUN22 Unclassified/Mixed - 30%, Embryonic Structures - 13%	0535.25.2001JUN22 Female Genitalia - 17%, Connective Tissue - 15%, Musculoskeletal System - 14%	7047.1:2001JUN22 Unclassified/Mixed - 50%, Female Genitalia - 33%, Male Genitalia - 17%	8646.15:2001JUN22 Skin - 15%, Female Genitalia - 14%, Unclassified/Mixed - 10%	6193.10:2001JUN22 Sense Organs - 29%	6405.14:2001JUN22 Unclassified/Mixed - 10%	8148.1:2001JUN22 Unclassified/Mixed - 22%, Male Genitalia - 18%, Urinary Tract - 17%		2783.22:2001JUN22 Respiratory System - 14%, Embryonic Structures - 12%, Female Genitalia - 10%	3417.5:2001JUN22 Nervous System - 32%, Skin - 19%, Endocrine System - 18%	5222.23:2001JUN22 Embryonic Structures - 37%, Pancreas - 18%, Exocrine Glands - 16%		0175.18:2001JUN22 Sense Organs - 27%	0434.6:2001JUN22 Stomatognathic System - 21%, Sense Organs - 18%	1550.19:2001JUN22 Utinary Tract - 34%, Sense Organs - 14%			LG:1501923.26:2001JUN22 Liver - 64%, Nervous System - 36%
T G-1094200 1-2	1004100110	LG:1099249.19:	LG:110667.1:20	LG:1132386.20:	LG:116015.2:20	LG:1173104.15:	LG:1285109.14:	LG:131477.11:2	LG:1333618.1:2	LG:1347760.16:	LG:1383039.369	LG:1383313.3:2	LG:1384075.8:2	LG:1384155.1:2	LG:1385280.12:	LG:1390535.25:	LG:1397047.1:2	LG:1398646.15:	LG:1446193.10:	LG:1446405.14:	LG:1448148.1:2	LG:1452619.13:	LG:1452783.22:	LG:1453417.5:2	LG:1455222.23:	LG:149121.8:20	LG:1500175.18:	LG:1500434.6:2	LG:1501550.19:	LG:1501923.26:	1	LG:150960.9:20
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14015	Tissue Distribution	Respiratory System - 20%, Pancreas - 18%, Nervous System - 16%		Exocrine Glands - 50%, Nervous System - 21%, Endocrine System - 17%	Sense Organs - 19%, Nervous System - 14%	Germ Cells - 16%, Skin - 15%, Connective Tissue - 12%	Unclassified/Mixed - 23%, Exocrine Glands - 14%, Digestive System - 14%		Hemic and Immune System - 50%, Digestive System - 33%, Nervous System - 17%	Female Genitalia - 22%, Nervous System - 22%, Connective Tissue - 17%			Nervous System - 13%, Pancreas - 13%, Male Genitalia - 13%	Digestive System - 57%, Male Genitalia - 29%, Hemic and Immune System - 14%	Pancreas - 28%, Female Genitalia - 14%, Respiratory System - 12%	Stomatognathic System - 15%	Sense Organs - 14%	Embryonic Structures - 90%, Nervous System - 10%	widely distributed	widely distributed		Pancreas - 36%, Cardiovascular System - 28%, Hemic and Immune System - 16%	Exocrine Glands - 100%	Germ Cells - 47%				Endocrine System - 44%, Hemic and Immune System - 33%, Male Genitalia - 22%	Germ Cells - 16%, Unclassified/Mixed - 14%, Hemic and Immune System - 11%	Skin - 13%, Unclassified/Mixed - 12%, Exocrine Glands - 11%	Embryonic Structures - 50%		Urinary Tract - 19%, Connective Tissue - 15%, Cardiovascular System - 12%
	Template ID	LG:182744.29:2001JUN22	LG:197166.1:2001JUN22	LG:197455.5:2001JUN22	LG:198251.8:2001JUN22	LG:200149.3:2001JUN22	LG:203483.3:2001JUN22	LG:209701.7:2001JUN22	LG:210614.1:2001JUN22	LG:210672.1:2001JUN22	LG:215051.10:2001JUN22	LG:218989.3:2001JUN22	LG:228107.11:2001JUN22	LG:231016.1:2001JUN22	LG:235943.60:2001JUN22	LG:235970.14:2001JUN22	LG:236697.15:2001JUN22	LG:238576.3:2001JUN22	LG:238602.2:2001JUN22	LG:241291.46:2001JUN22	LG:241742.1:2001JUN22	LG:244520.33:2001JUN22	LG:247556.1:2001JUN22	LG:247792.5:2001JUN22	LG:253580.6:2001JUN22	LG:291759.5:2001JUN22	LG:298226.1:2001JUN22	LG:306342.1:2001JUN22	LG:327144.5:2001JUN22	LG:331499.8:2001JUN22	LG:331582.12:2001JUN22	LG:333017.12:2001JUN22	LG:334438.8:2001JUN22
	SEQ ID NO:															505														519			

1,40164		11 UN22 Germ Cells - 32%, Skin - 21%	01JUN22 Nervous System - 10%	11 JUN22 Urinary Tract - 19%, Musculoskeletal System - 12%, Female Genitalia - 11%	_	NOITUN22 Respiratory System - 17%, Exocrine Glands - 11%	001JUN22 Sense Organs - 18%, Male Genitalia - 18%, Urinary Tract - 13%	1JUN22 Skin - 24%, Digestive System - 19%, Respiratory System - 17%				01JUN22 Sense Organs - 15%, Urinary Tract - 13%, Embryonic Structures - 11%	001JUN22 Digestive System - 33%, Male Genitalia - 33%, Hemic and Immune System - 25%	001JUN22 Stomatognathic System - 23%, Sense Organs - 13%	001JUN22 Unclassified/Mixed - 13%		001JUN22 Sense Organs - 15%, Embryonic Structures - 10%	01JUN22 Skin - 13%, Sense Organs - 12%, Endocrine System - 11%	001JUN22 Unclassified/Mixed - 18%, Urinary Tract - 15%	01JUN22 Embryonic Structures - 16%, Connective Tissue - 13%	001JUN22 Liver - 23%, Endocrine System - 17%, Germ Cells - 14%	01 JUN22 Unclassified/Mixed - 16%	001JUN22 Nervous System - 100%		001JUN22 Nervous System - 19%, Liver - 12%, Male Genitalia - 12%	001JUN22 Hemic and Immune System - 50%, Nervous System - 50%		001JUN22 Liver - 17%, Urinary Tract - 17%, Exocrine Glands - 12%	001JUN22 Hemic and Immune System - 100%		001 JUN22 Embryonic Structures - 20%, Pancreas - 20%, Liver - 19%, Male Genitalia - 19%	001JUN22 Liver - 32%, Unclassified/Mixed - 21%, Musculoskeletal System - 21%	Mamic and Immine Sustem : 100%
	Template ID	LG:337835.7:2001JUN22	LG:346536.12:2001JUN22	LG:348117.5:2001JUN22	LG:350407.22:2001JUN22	LG:373219.13:2001JUN22	LG:375048.15:2001JUN22	LG:400114.3:2001JUN22	LG:400652.1:2001JUN22	LG:401313.10:2001JUN22	LG:406389.1:2001JUN22	LG:406595.2:2001JUN22	LG:410628.21:2001JUN22	LG:413583.15:2001JUN22	LG:419641.35:2001JUN22	LG:420759.4:2001JUN22	LG:425448.18:2001JUN22	LG:435717.5:2001JUN22	LG:441159.31:2001JUN22	LG:461375.2:2001JUN22	LG:474674.34:2001JUN22	LG:481414.8:2001JUN22	LG:7669276.1:2001JUN22	LG:7677848.1:2001JUN22	LG:7684981.3:2001JUN22	LG:7685048.6:2001JUN22	LG:7688302.1:2001JUN22	LG:7690463.3:2001JUN22	LG:7691479.5:2001JUN22	LG:7691527.4:2001JUN22	LG:7691663.1:2001JUN22	LG:7691854.1:2001JUN22	1.G-7692235 2-2001 II IN22
	SEQ ID NO:	523	524	525	526	527	528	529	530	531	532	533	534	535	536		238	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554

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Tissue Distribution	Exocrine Glands - 20%, Digestive System - 17%, Nervous System - 14%	Sense Organs - 69%	Nervous System - 50%, Female Genitalia - 33%, Hemic and Immune System - 17%	Musculoskeletal System - 19%, Exocrine Glands - 15%, Embryonic Structures - 14%	Musculoskeletal System - 34%, Embryonic Structures - 14%, Connective Tissue - 10%	Liver - 11%	Nervous System - 14%, Sense Organs - 12%, Embryonic Structures - 11%	Skin - 37%, Sense Organs - 27%	Digestive System - 12%, Female Genitalia - 11%, Hemic and Immune System - 11%	Unclassified/Mixed - 29%, Female Genitalia - 16%, Connective Tissue - 16%	Embryonic Structures - 21%, Hemic and Immune System - 17%, Digestive System - 15%	Digestive System - 14%	Sense Organs - 14%, Pancreas - 12%, Unclassified/Mixed - 12%
Template ID	LG:7692239.1:2001JUN22	LG:7692575.1:2001JUN22	LG:7692742.1:2001JUN22	LG:7693942.1:2001JUN22	LG:899248.22:2001JUN22	LG:979051.25:2001JUN22	LG:979054.18:2001JUN22	LG:979415.1:2001JUN22	LG:980685.1:2001JUN22	LG:981272.6:2001JUN22	LG:982723.4:2001JUN22	LG:982915.8:2001JUN22	LG:987785.10:2001JUN22
SEQ ID NO:									563				

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a contrator and	Annotation	unnamed protein product	evidence:NAS~hypothetical protein~putative	156 kDa Protein	Similar to RIKEN cDNA 2400006N03 gene	data source:SPTR, source key:Q9W704, evidence:ISS-putative-related to XENOPUS RPA	INTERACTING PROTEIN ALPHA	Xenopus RPA interacting protein alpha	data source:SPTR, source key:Q15546, evidence:ISS~homolog to MONOCYTE TO	MACKOPHAGE DIFFERENTIATION FROTEIN~pulative	data source:SPTR, source key:Q15546, evidence:ISS~homolog to MONOCYTE TO MACROPHAGE DIFFERENTIATION PROTEIN~putative	monocyte to macrophage differentiation-associated	data source: SPTR, source key: Q9H5H0, evidence: ISS-homolog to CDNA: FLJ23445 FIS,	CLONE HS101721~putative	data source: SPTR, source key: Q9H5H0, evidence: ISS-homolog to CDNA: FLJ23445 FIS,	CLONE HSI01721~putative	data source:SPTR, source key: Q9H5H0, evidence: ISS-homolog to CDNA: FLJ23445 FIS,	CLONE HSI01721~putative	uncharacterized hematopoietic stem/progenitor cells protein MDS033	uncharacterized hematopoietic stem/progenitor cells protein MDS033	data source:SPTR, source key:Q9NZ42, evidence:ISS-homolog to UNCHARACTERIZED	HEMATOPOIETIC STEM/PROGENITOR CELLS PROTEIN MDS033~putative	vegetative cell wall protein gp1	probable protease 1 like protein	unknown	data source:SPTR, source key:Q9HA82, evidence:ISS~homolog to CDNA FLJ12089 FIS, CLONE HEMBB1002550, WEAKLY SIMILAR TO HYPOTHETICAL UOG-1	TRH4	Similar to RIKEN cDNA 2310081H14 gene	unnamed protein product	NG22 protein	NG22
	Probability Score	1.00E-154	1.00E-120	3.00E-09	4.00E-77	3.00E-62		2.00E-31	1.00E-101		1.00E-101	1.00E-101	7.00E-70		7.00E-70		7.00E-70		1.00E-56	1.00E-56	5.00E-55		2.00E-07	8.00E-07	4.00E-06	1.00E-79	1.00E-79	4.00E-62	0	0	0
		g16550386	g12836009	g296164	g13325269	g12845621		g5262751	g12847529		g12836289	g18314462	g12846755		g12840994		g12837553		g7689013	g16307000	g12841276		g12018147	g14571744	g15213204	g12845540	g13936285	g14715021	g14042044	g15779199	g4529890
								542	790		790	790	1032		1032		1032		523	523	523		1274	1274	1274	1108	1108	1108	1753	1753	1753
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,	Length	335	335	335	180	180		180	263		263	263	162		162		162		127	127	127		392	392	392	239	239	239	584	584	584
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	SEQ ID NO:	587	587	587	591	165		591	. 592		592 2 263	592	594		765 42	!1	594		595	595	595		596	596	596	599	599	599	109	109	601

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TACTOR I	Annotation	unnamed protein product	unnamed protein product	PRO0764 '	Similar to hypothetical protein	unnamed portein product	Similar to RIKEN cDNA 2610017G09 gene	unnamed protein product	unnamed protein product	PRO2550	unnamed protein product	alternatively spliced product using exon 13A	PRO0659 protein	PRO0659	dJ469A13.2 (Novel protein)	data source: SPTR, source key: Q9H8P4, evidence: ISS-homolog to CDNA FLJ 13346 FIS,	CLONE OVARC1002107~putative	data source:SPTR, source key:Q9H8P4, evidence:ISS~homolog to CDNA FLJ13346 FIS,	CLONE OVARC1002107~putative	dJ469A13.2 (Novel protein)	data source:SPTR, source key:Q9H8P4, evidence:ISS~homolog to CDNA FLJ13346 FIS, CLONE OVARC1002107~putative	data-source: SPTR_source key: 09H8P4, eyidence: ISS~homolog to CDNA FLJ13346 FIS,	CLONE OVARC1002107-putative	unnamed protein product	unnamed protein product	PRO0764	FYN binding protein	SLP-76 associated protein	EVH1 domain binding protein	evidence:NAS~hypothetical protein~putative	evidence:NAS~hypothetical protein~putative	Unknown (protein for IMAGE:3838856)
:	GI Number Probability Score	1.00E-45	2.00E-45	3.00E-25	8.00E-23	2.00E-20	0	0	0	1.00E-20	1.00E-19	2.00E-18	1.00E-100	1.00E-100	1.00E-110	1.00E-71		1.00E-71		2.00E-82	3.00E-47	3 00E-47	l l	2.00E-18	4.00E-17	6.00E-17	0	0	0	3.00E-24	1.00E-23	6.00E-08
	GI Number	g14042145	g14041949	g14189960	g15214765	g9280152	g13543940	g14035978	g14272784	g11493483	g7020440	g1872200	g12654109	g6690250	g14717079	g12857138		g12839239		g14717079	g12839239	012857255	61100119	g10437569	g10437485	g14189960	g2232150	g2078273	g7416993	g12851779	g12836995	g13937933
į	Stop	840	840	788	788	788	1329	1329	1329	2059	2059	2059	2077	2077	1224	1224		1224		622	622	609	3	476	476	476	2448	2448	2448	916	916	332
	Start	-	-	330	330	330	214	214	214	1559	1559	1559	1262	1262	604	604		604		7	7	C	1	234	234	234	73	73	73	515	515	m
	Length	280	280	133	133	133	372	372	372	167	167	167	272	272	207	207		207		207	207	207	ì	81	81	81	792	792	792	134	134	110
	Frame									7										2	7	r		ю	3	Э	-	-	-	2	7	n
,	SEQ ID NO:	615	615	624	624	624	979	929	979	627	627	627	628	628	629	679 42		629		630	630	630	200	631	631	631	632	632	632	638	638	640

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		Similar to hypothetical protein FLJ10134	unnamed protein product	Similar to hypothetical protein FLJ10134	Unknown (protein for MGC:8183)	URAX1	TGF-beta induced apotosis protein 3	unnamed protein product	hypothetical protein	AKAP-2 protein	KJAA0920 protein	bA151F5.1.1 (A kinase (PRKA) anchor protein 2)	unnamed protein product	KIAA0999 protein	hypothetical protein	unnamed protein product	PRO2550	Similar to CGI-62 protein	CGI-62 protein.	data source: SPTR, source key: Q9Y372, evidence: ISS-homolog to CGI-62 PROTEIN-putative	hypothetical protein	unnamed protein product	dynein light intermediate chain 2	dynein light intermediate chain 53/55	dynein light intermediate chain 53/55	unnamed protein product	Unknown (protein for MGC:11798)	KIAA1387 protein	alternatively spliced form	unknown	lung seven transmembrane receptor 1	KIAA1624 protein	lung seven transmembrane receptor 2
	Probability Score	1.00E-165	1.00E-165	1.00E-13I	9.00E-06	0	0	0	2.00E-53	0	0	0	1.00E-49	1.00E-49	1.00E-29	7.00E-24	3.00E-23	0	0	5.00E-43	2.00E-10	3.00E-07	1.00E-103	1.00E-100	1.00E-100	1.00E-93	6.00E-61	3.00E-60	7.00E-16	1.00E-09	1.00E-89	1.00E-82	2.00E-62
		g16740557	g14035908	g17390505	g12805623	g14549207	g17907795	g17049034	g13276669	g14041780	g4589472	g17384432	g10433669	g14133229	g12698182	g7020440	g11493483	g14290590	g4929593	g12854328	g16041152	g10435380	g2665836	g2618478	g2618484	g10436645	g13905156	g7243155	g6691806	g12007315	g14248997	g10047325	g14248999
,	Stop																															756	
ı	Start	7	7	7	405	181	181	181	125	7	7	7	35	35	295	295	562	8	65	65	1394	1394	22	25	22	899	899	899	890	890	136	136	136
•	Length	307	307	307	138	584	584	584	123	917	917	214	181	181	124	124	124	331	331	331	120	120	212	212	212	184	184	184	115	115	207	207	207
-	rame I	2	2	7	3	-	-		7	7	2	2	7	7	-	-	_	7	2	7	2	2	_	_	_	7	7	2	2	7			-
	SEQ ID NO: Frame	643	643	643	644	645	645	645	646	647	647	647	649	649	650	059		651	159	651	652	652	653	653	653	655	655	655	657	657	658	859	658

Annotation	unnamed protein product	data source: SPTR, source key: 077262, evidence: ISS-putative-related to EG: 22E5.9 PROTEIN	data source:SPTR, source key: 077262, evidence: ISS-putative-related to EG: 22E5.9 PROTEIN	annexin V-binding protein (ABP-10)	unnamed protein product	gene_id:T19N8.6~unknown protein	KIAA1833 protein	Hypothetical protein C34G6.1	Hypothetical protein C34G6.1	unnamed protein product	KIAA1888 protein	ATP-binding cassette A5	0-44 protein	data source:SPTR, source key:P38718, evidence:ISS~homolog to 0-44 PROTEIN~putative	RIKEN ¢DNA 2610205H19 gene	Similar to CG4452 gene product	hypothetical protein	hypothetical protein	unknown	putative alpha mannosyltransferase	Unknown (protein for MGC:3136)	myeloid cell leukemia protein 1	myeloid cell differentiation protein	Mci-1 delta S/TM	metallothionein-I gene transcription activator	RNA polymerase II	polymerase (RNA) II (DNA directed) polypeptide K (7.0kD)	evidence:NAS~hypothetical protein~putative	conserved hypothetical protein	emblCAB61034.1~gene_id:K3K7.8~similar to unknown protein	hypothetical protein	huntington yeast partner C
Probability Score	1.00E-76	7.00E-76	7.00E-76	0	1.00E-140	2.00E-50	0	7.00E-31	7.00E-31	3.00E-72	3.00E-72	3.00E-72	6.00E-70	1.00E-69	1.00E-69	2.00E-83	4.00E-77	3.00E-72	1.00E-29	1.00E-29	1.00E-29	5.00E-93	5.00E-93	5.00E-93	3.00E-30	8.00E-30	8.00E-30	4.00E-48	1.00E-13	2.00E-08	0	1.00E-179
GI Number	2514	g12845046	g12848539	g4432953	g10438646	g11994784	g14017883	g15617725	g7105685	g16554238	g15620835	g17223620	g203072	g12848292	g17390760	g14198207	g4200234	g4200238	g18027778	g15485600	g12804615	g9857700	g8388943	g7582272	g8248885	g717187	g17390349	g12848031	g12718388	g9758240	g6808038	g5081610
Stop	672	672	672	4306	4306	4306	1196	1196	1196	209	209	209	504	504	504	725	725	725	255	255	255	720	720	720	245	245	245	389	389	389	1586	1586
Start	175	175	175	7	7	7	m	٣	ю	122	122	122	115	115	115	m	က	က	<b>,_</b>	_			-	-	63	83	63	က	m	ю	438	438
Lenoth	166	166	166	1435	1435	1435	398	398	398	162	162	162	130	130	130	241	241	241	85	82	82	240	240	240	61	19	61	129	129	129	383	383
Frame		<b></b>	-	2	2	7	33	ъ	m	7	7	2	-	_	-	æ	3	Э	-		-		-1	-	ю	ю	က	٣	т	æ	3	m
SEO ID NO:		099	099	661	199	661	299	662	662	663	663	663	664	664	<del>4</del> 2		999	999	899	899	899	699	699	699	029	029	019	671	179	1/9	672	672

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e Annotation	unnamed protein product	KIAA1402 protein	Unknown (protein for IMAGE:3987018)	hypothetical protein FLJ22678	unnamed protein product	unnamed protein product	Unknown (protein for MGC:19764)	ATP-binding cassette protein	ATP-binding cassette A5	KIAA0822 protein	NG,NG-dimethylarginine dimethylaminohydrolase	unnamed protein product	data source:MGD, source key:MGI:1916469, evidence:ISS~dimethylarginine	dimethylaminohydrolase 1~putative	Similar to RIKEN cDNA 6030457N17 gene	data source:Pfam, source key:PF01754, evidence:ISS~hypothetical A20-like zinc finger	containing protein~putative	CGS333 gene product	Unknown (protein for MGC:10135)	unnamed protein product	unnamed protein product	KIAA1532 protein	fos39554_1	Unknown (protein for IMAGE:4825062)	Similar to KIAA0475 gene product	KIAA0475 protein	TRH4	data source:SPTR, source key:Q9HA82, evidence:ISS-homolog to CDNA FLJ12089 FIS,	CLONE HEMBB1002550, WEAKLY SIMILAR TO HYPOTHETICAL UOG-1	Trh1	KIAA1145 protein	cerebral protein-11
Probability Score	1.00E-179	0	0	1.00E-130	5.00E-11	3.00E-09	3.00E-09	0	0	2.00E-66	1.00E-161	1.00E-160	1.00E-152		1.00E-162	1.00E-112		3.00E-15	1.00E-121	1.00E-121	1.00E-121	0	0	1.00E-113	7.00E-06	7.00E-06	1.00E-168	1.00E-168		5.00E-86	0	1.00E-133
GI Number	g10440161	g7243185	g18043971	g15426519	g7022185	g16549259	g18203809	g17046100	g17223620	g4240130	g4160666	g10279810	g12845868		g13544020	g12833947		g7299642	g16877144	g14041999	g14042471	g7959331	g2959559	g18314468	g18044412	g3413912	g13936285	g12845540		g15077841	g6330019	g13874437
Stop	1586	3803	3803	3803	995	995	662	2477	2477	2477	871	871	871		886	988		886	1365	1365	1365	1847	1847	1847	279	279	1350	1350		1350	1492	1492
Start	438	2553	2553	2553	396	396	396	1080	1080	1080	7	7	7		8	80		8	<b>667</b>	<i>L</i> 99	<i>199</i>	363	363	363	118	118	28	28		28	35	35
Length	383	417	417	417	68	68	68	466	466	466	290	290	290		303	303		303	233	233	233	495	495	495	54	54	441	441		441	467	467
Frame	33	ю	3	ю	က	m	က	ю	m	e	2	7	2		2	2		2	-	-	_	ю	ю	ю	1	1	-	-		-	7	7
SEQ ID NO:	672	673	673	673	674	674	674	675	675	675	9/9	9/9	9/9		619	619		619	089	089	089	681	681	681	682	682	684	684		. 684	889	889

Table 5	KTA A0481 nrotein			2 unnamed protein product	11 Unknown (protein for MGC:14607)	_	il similar to MLN 64; similar to I38027 (PID:g2135214)	0 hypothetical protein	4 putative calcium channel	4 putative calcium channel			3 CG13907 gene product	4 unnamed protein product	3 Unknown (protein for MGC:19083)		Similar to RIKEN cDNA 4931428D14 gene	_	13 RIKEN cDNA 4931428D14 gene	2 unnamed protein product		2 Unknown (protein for MGC:3020)		I signal recognition particle 9kD	1 signal recognition particle 9kD	6 DC42	unknown	SCHIP-1	SCHIP-1-D241/253	MOP-5	unnamed protein product	30 hypothetical protein SBBI88
D.o.b.o.b.:13411 0.0000	1 00E-133	1.00E-108	1.00E-108	1.00E-102	1.00E-13]	1.00E-13	1.00E-13	1.00E-130	1.00E-14	1.00E-14	3.00E-40	7.00E-38	2.00E-13	8.00E-74	5.00E-63	2.00E-14	0	1.00E-174	1.00E-173	2.00E-92	2.00E-92	7.00E-92	2.00E-41	3.00E-21	3.00E-21	2.00E-56	0	0	0	0	0	1.00E-180
71 M 1.02	of 634047	g12539946	g12001948	g12539948	g13543615	g13111774	g4309949	g6808093	g4263043	g4206210	g16550068	g12834087	g7292012	g10438063	g15277443	g18027352	g14603078	g12845936	g13543107	g16549297	g18204863	g12653557	g18314565	g18490251	g15929315	g12006055	g3283879	g6978018	g6978022	g11610570	g14042766	g6942315
į	310p	639	639	639	1197	1197	1197	941	941	941	286	286	286	697	697	697	1217	1217	1217	953	953	953	347	347	347	4313	1331	1331	1331	1327	1327	1327
į	91all	3 %	25	22	484	484	484	က	m	ĸ	7	7	7	110	110	110	162	162	162	498	498	498	96	96	96	3993	246	246	246	377	377	377
T	Lengui 467	205	205	202	238	238	238	313	313	313	92	95	95	196	196	196	352	352	352	152	152	152	84	84	84	107	362	362	362	317	317	317
Ĺ	rialle		-	-		-	_	33	ю	3	7	7	7	7	7	7	33	ю	3	က	en	æ	3	٣	3	က	က	ю	ю	7	7	. 7
ON OI OBS	SEQUENCE FIAME LENGUE	691	691	691	692	692	692	693	663	693	694	694	694	695	569 427	569	969	969	969	702	702	702	703	703	703	704	706	902	200	707	707	707

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60001	Annotation	PRO1847	unnamed protein product	PRO1902	hypothetical protein	unnamed profein product	НС6	unnamed protein product	chromosome 9 open reading frame 6	hypothetical protein FLJ20457	unnamed protein product	unnamed protein product	Phosphatidylglycerophosphate synthase	data source:SPTR, source key:Q9PTD5, evidence:ISS~putative~related to KIAA0009 PROTEIN	Similar to RIKEN cDNA 2610016C23 gene	data source:SPTR, source key:Q15390, evidence:ISS~homolog to HYPOTHETICAL PROTEIN	KIAA0009~putative	KIAA0188	Lpin 1	data source:MGD, source key:MGI:1891340, evidence:ISS~lipin 1~putative	ovarian fibroin-like substance-1	dragline silk fibroin	dragline silk protein	unnamed protein product	d7259A10.1 (ssDNA binding protein (SEB4D))	RRM-containing protein SEB-4	Unknown (protein for IMAGE:4537124)	data source:SPTR, source key: Q9V540, evidence: ISS-putative-related to CG8058 PROTEIN	GAJ	data source:SPTR, source key:Q09739, evidence:ISS~putative~related to HYPOTHETICAL		hypothetical colled-coll protein	dcc/12/17/
	Probability Score	6.00E-16	6.00E-15	3.00E-14	9.00E-12	1.00E-11	2.00E-10	1.00E-101	1.00E-101	1.00E-101	0	0	0	1.00E-125	1.00E-124	1.00E-124		0	0	0	9.00E-24	3.00E-23	3.00E-23	9.00E-22	9.00E-22	6.00E-18	4.00E-81	2.00E-30	1.00E-114	1.00E-102	2000	2.00E-31	8.00E-24
		g7770147	g10437752	g6650810	g16041132	g10435559	g10799024	g7020571	g12002684	g16041813	g16516599	g16516597	g4159682	g12847516	g17512323	g12855709		g1136436	g7264655	g12859810	g10954048	g159712	g17063211	g16550108	g13624461	g8895698	g15214686	g12858533	g13488609	g12847934	004004	g984224	g1/807207
	Stop	313	313	313	618	618	618	603	603	603	1691	1691	1691	1237	1237	1237		2737	2737	2737	1804	1804	1804	1163	1163	1163	2151	2151	658	658	2	200	τ γ
	Start	Ξ	Ξ	=	271	271	271	-	-		3	3	33	119	119	119		7	7	7	7	7	7	298	768	768	1156	1156	7	7	ď	? ?	071
	Length	101	101	101	116	116	116	201	201	201	563	563	263	373	373	373		912	912	912	601	109	601	132	132	132	332	332	219	219		219	907
	Frame	7	7	7	-	-	-		-	_	Ŕ	3	က	2	7			7	7	2	7	7	7	n	က	က	1	1	7	7	(	2 6	3
	SEQ ID NO:	708	708	708	709	709	709	711	711	711	713	713	713	714	714	41L 42		717	717	717	718	718	718	.720	720	720	723	723	725	725		725	97/

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Table 5	Annotation	CG8379 gene product	bA11M20.3.1 (novel protein similar to Pleurodeles waltlii RAP55 protein, isoform 1)	bA11M20.3.2 (novel protein similar to Pleurodeles waltlii RAP55 protein, isoform 2)	Unknown (protein for MGC:10135)	unnamed protein product ,	DRCTINB1A	down-regulated by Ctnnb1, a	KIAA0461 perotein	XIAA0461/245 protein	ORF; similar to Drosophila supressor of hairy wing protein, Swiss-Prot Accession Number	hypothetical protein	Similar to RIKEN cDNA 1110018112 gene	data source: SPTR, source key: P11055, evidence: ISS~homolog to MYOSIN HEAVY CHAIN,	FAST SKELETAL MUSCLE, EMBRYONIC (MUSCLE EMBRYONIC MYOSIN HEAVY CHAIN) (SMHCE)-putative	RALBPI	Unknown (protein for MGC:16228)	RalBP1-associated EH domain protein Reps1	Unknown (protein for IMAGE:2822295)	Unknown (protein for IMAGE:2822295)	Unknown (protein for MGC:7867)	TOC!	hypothetical protein DKFZp5661133	unnamed protein product	hypothetical protein	hypothetical protein	putative protein	Similar to HSPC171 protein	KIAA1505 protein	hypothetical protein	hypothetical protein	KIAA1189 protein
	Probability Score	8.00E-24	0	1.00E-138	4.00E-94	1.00E-106	1.00E-106	1.00E-106	4.00E-60	4.00E-60	9.00E-05	0	2.00E-68	1.00E-62		1.00E-171	1.00E-171	1.00E-163	1.00E-128	1.00E-128	2.00E-58	3.00E-41	3.00E-41	3.00E-41	4.00E-05	9.00E-67	3.00E-53	4.00E-20	0	1.00E-148	1.00E-127	1.00E-112
		g7299099	g13559033	g13559032	g16877144	g16551687	g13442784	g17511709	g3413884	g5101774	g927300	g15208233	g15080468	g12834655		g13625166	g15706481	g2677843	g12654495	g13279332	g13879370	g17221829	g14602501	g13185293	g9104819	g3738323	g7269951	g13111782	g7959271	g9929955	g15208049	g6330331
	Stop	749	1411	1411	1411	638	638	638	1633	1633	1633	1801	1801	1801		939	939	939	844	844	844	704	704	704	582	584	584	584	2760	2760	2760	863
	Start	126	7	7	7	ĸ	က	ო	1289	1289	1289	ς.	ς.	S		_	_	-	83	83	83	294	294	294	142	m	m	m	940	940	940	192
	Length	208	470	470	470	212	212	212	115	115	115	599	599	599		313	313	313	254	254	254	137	137	137	147	194	194	194	607	209	209	224
	Frame	т	2	7	2	ю	ю	ю	2	7	7	7	7	7		_	-		7	7	7	Э	3	3	-	ĸ	ы	ю	-	-	-	m
	SEQ ID NO:	726	727	727	727	728	728	728	729	729	729	730	730	730		55 733	733	733	734	. 734	734	735	735	735	738	739	739	739	744	744	744	746

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Annotation	data source:SPTR, source key:Q9ULN1, evidence:ISS~homolog to KIAA1189 PROTEIN	(FRAGMENT)-putative	unnamed protein product	hypothetical protein	KIAA 1771 protein	unnamed protein product	human CLASP-3	unnamed protein product	unnamed protein product	hypothetical protein FLJ22419	chromosome 12 open reading frame 22	hypothetical protein	TGF-beta induced apotosis protein 12	HC6	unnamed protein product	unknown	unnamed protein product	Unknown (protein for MGC:20579)	sypothetical protein	unnamed protein product	unnamed protein product	Unknown (protein for MGC:7041)	hypothetical protein	ORF	nucleolar phosphoprotein p130	nucleolar phosphoprotein p130	KIAA1585 protein	unnamed protein product	male-specific lethal-2	KIAA1387 protein	Similar to hypothetical protein FLJ20707	Unknown (protein for MGC:11798)
GI Number Probability Score	5.00E-46 d	E)	1.00E-177 u	1.00E-176 h	1.00E-180 K	1.00E-179 u	1.00E-151 h	<b>n</b> 0	1.00E-130 u	1.00E-130 h	0	и 0	L 0	5.00E-15 F	3.00E-14 u	1.00E-11 u	4.00E-05 u	1.00E-110 U	5.00E-39 h	3.00E-38 u	6.00E-95	_	1.00E-07 h	0	0	0	0	_	1.00E-14 n	0	0	0
GI Number	g12861409		g10436681	g5912126	g12698087	g16550229	g14597918	g16553996	g10438804	g13938187	g16878013	g12274931	g18146658	g10799024	g10436743	g18027740	g16550881	g17512047	g13365915	g7020988	g16553318	g13097084	g6807802	g434765	g12804871	g663008	g10047245	g7022646	g3377722	g7243155	g13623235	g13905156
Stop	863		1713	1713	1172	1172	1172	1746	1746	1746	1958	1958	1958	591	591	591	787	752	752	752	1057	1057	1057	1598	1598	1598	2437	2437	2437	2843	2843	2843
Start	192		781	781	252	252	252	274	274	274	324	324	324	223	. 223	223	575	174	174	174	452	452	452	285	285	285	653	653	653	æ	m	æ
Length	224		311	311	307	307	307	491	491	491	545	545	545	123	123	123	71	193	193	193	202	202	202	438	438	438	595	595	595	947	947	947
Frame	ю		-	-	ъ	Э	ю	-	_	-	3	ю	Э	-	-	_	7	ю	ъ	æ	7	7	7	ю	n	3	7	7	7	т	٣	m
SEQ ID NO: Frame Length	746		748	748	749	749	749	751	751	751	752	752	752	754	43/		755	756	756	756	757	757	757	160	760	760	763	763	763	764	764	764

PCT/US02/09921

Table 5	Annotation Annotation olfactory receptor MOR138-3	olfactory receptor	M12 odorant receptor	bA261N11.2.1 (novel protein, isoform 1)	MRNA, COMPLETE CDS, CLONE:1-107~data source:SPTR, source key:Q9IMG4,	evidence:ISS~putative	contains transmembrane (TM) region	olfactory receptor	olfactory receptor MOR262-4	olfactory receptor	data source:SPTR, source key:044231, evidence:ISS-putative-related to OUTER ARM		data source:SFIR, source key:O44231, evidence:ISS-putative~related to OU1ER ARM DYNEIN LIGHT CHAIN 1	outer arm dynein light chain 1	hypothetical protein	Similar to calcium/calmodulin-dependent protein kinase kinase 1, alpha	calcium/calmodulin-dependent protein kinase kinase alpha	pBS4A5	Unknown (protein for MGC:18335)	cytochróme P-450	ProW protein homolog	putative transport system permease protein	putative aliphatic sulfonate transport membrane component	unnamed protein product	unknown	hypothetical protein	unnamed protein product	hypothetical protein	L-threonine 3-dehydrogenase	no on or off transient A	no on or off transient A
	GI Number Probability Score g18480246 3.00E-30	7.00E-26	6.00E-21	1.00E-101	7.00E-81		7.00E-81	4.00E-24	4.00E-24	4.00E-24	6,00E-57	1	1.00E-52	2.00E-24	2.00E-25	7.00E-25	7.00E-25	3.00E-05	3.00E-05	3.00E-05	1.00E-121	1.00E-121	1.00E-113	4.00E-18	5.00E-16	2.00E-14	1.00E-103	2.00E-98	7.00E-56	2.00E-05	2.00E-05
	GI Number g18480246	g15293707	g9652309	g13560108	g12837694		g7259234	g5869925	g18479780	g8919697	g12853606		g12840067	g2760163	g13276655	g17028424	g18308166	g6705973	g14789624	g3738263	g4062502	g1787165	g4583569	g16549456	g18027424	g12698155	g16553692	g16580688	g14091950	g16554793	g16554785
	Stop 205	202	202	572	572		572	503	503	503	643		643	643	970	970	970	390	330	330	857	857	857	1996	1996	1996	557	557	557	756	756
	Start 2	7	7	21	21		21	9	9	9	4		4	14	644	644	644	-		-	186	186	186	1724	1724	1724	ю	ო	ю	9/	9/
	Length 68	89	89	184	184		184	166	166	166	210		210	210	109	109	109	130	130	130	224	224	224	16	91	16	185	185	185	227	227
	Frame 2	7	7	Э	ы		ς.	٣	Э	Э	2		7	7	7	7	2	-	-	-	e	m	٣	7	7	7	က	ю	3	-	_
	SEQ ID NO: Frame Length	911	176	LLL	777		777	778	778	778	779	į	417	6LL 4		780	780	781	781	781	782	782	782	783	783	783	784	784	784	787	787

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Annotation					_						,					12	=				2						SCOT		2		!	r MCH-R2
נפטנכט	no on or off transient A	Unknown (protein for MGC:27375)	IgA regulatory protein	Unknown (protein for MGC:29628)	Similar to hypothetical protein FLJ10891	unnamed protein product	HERV-E envelope glycoprotein	HERV-E envelope glycoprotein	HERV-E envelope protein	HERV-E envelope glycoprotein	HERV-E envelope glycoprotein	HERV-E envelope protein	PRO0478	zinc finger protein	hypothetical protein	Similar to hypothetical protein AB030201	Similar to hypothetical protein AB030201	contains transmembrane (TM) region	unnamed protein product	PRO0898:	Similar to hypothetical protein PRO1722	unnamed protein product	Similar to KIAA0643 protein	KIAA0643 protein	thymic stromal co-transporter	unnamed protein product	putative thymic stromal co-transporter TSCOT	cd003 protein	Similar to hypothetical protein PRO1722	Unknown (protein for MGC:23782)	PRO1902	melanin-concentrating hormone receptor MCH-R2
Prohability Score	2.00E-05	8.00E-21	5.00E-19	9.00E-08	9.00E-08	9.00E-08	2.00E-20	2.00E-20	8.00E-19	2.00E-21	2.00E-21	2.00E-19	1.00E-13	3.00E-10	1.00E-09	1.00E-109	8.00E-87	2.00E-86	2.00E-12	6.00E-08	1.00E-07	1.00E-139	1.00E-138	1.00E-109	5.00E-48	1.00E-47	1.00E-38	3.00E-23	4.00E-14	7.00E-14	1.00E-13	1.00E-48
GI Number	g16554787	g16924282	g10336831	g16878329	g12804415	g7023216	g2587027	g2587024	g1049232	g2587027	g2587024	g1049232	g6690227	g186774	g9929995	g14249961	g14789776	g7259296	g16553789	g11493409	g16877294	g10435262	g16877653	g3327100	g13506805	g16550334	g8131858	g9963761	g14249973	g18490197	g6650810	g15667843
S.	756	2688	2688	189	189	189	467	467	467	1354	1354	1354	400	400	400	971	971	971	1261	1261	1261	1323	1323	1323	519	519	519	1574	477	477	411	860
Ctart	76	2479	2479	55	55	55	141	141	141	920	920	920	233	233	233	108	108	108	953	953	953	577	277	21.1	214	214	214	111	289	289	289	495
Length	227	70	70	45	45	45	109	109	109	145	145	145	26	26	26	288	288	288	103	103	103	249	249	249	102	102	102	592	63	63	63	122
Frame	1	-	-	-	_		3	ĸ	ю	7	7	7	7	7	7	ю	ю	ю	2	7	<b>7</b>	<b></b>		-	-	-	-	e	н	-		m
SEO ID NO. Erame I ength	787	788	788	790	790	790	792	792	792	793	793	793	794	794	432 432	964	962	266	767	797	797	800	800	800	802	802	802	804	805	805	805	908

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Annotation	G protein-coupled receptor	G protein-coupled receptor MCH2	hypothetical protein FLJ23322	unnamed protein product	unnamed protein product	ST2V	ST2 protein	ST2L .	Protein phosphatase 2C containing protein-data source: Pfam, source key: PF00481,	evidence:ISS~putative	unnamed protein product	data source:SPTR, source key: 014563, evidence: ISS-homolog to GLUTAMYL-TRNA	SYNTHETASE (FRAGMENT)~putative	CG4573 gene product	glutamyl-tRNA synthetase (gltX)	unnamed protein product	Similar to RIKEN cDNA 2700091N06 gene	evidence:NAS~hypothetical protein~putative	evidence:NAS~hypothetical protein~putative	RIKEN cDNA 1200015A19 gene	Similar to RIKEN cDNA 1200015A19 gene	MQP-3	unnamed protein product	hypothetical protein FLJ10701	mitochondrial import receptor Tom22	Tom22	unnamed protein product	hypothetical protein	KIAA1014 protein	unnamed protein product	dJ927M24.2 (KIAA1219)	KIAA1219 protein
Probability Score	1.00E-48	1.00E-48	0	0	0	1.00E-92	7.00E-54	7.00E-54	1.00E-34		6.00E-16	1.00E-60		5.00E-35	5.00E-27	0	0	1.00E-170	2.00E-64	2.00E-64	8.00E-31	1.00E-149	1.00E-149	1.00E-148	7.00E-76	7.00E-76	7.00E-76	7.00E-81	7.00E-81	6.00E-76	0	1.00E-162
GI Number	g141'64383	g13604342	g16041704	g10438323	g10439967	g6172225	g220077	g5456908	g12850332		g16552416	g12852098		g7294109	g2688265	g14042460	g13623647	g12849446	g12836212	g18043476	g17512106	g11990420	g7022892	g18606385	g9501799	g10716801	g10437092	g6808095	g4589678	g10434696	g10862874	g6330590
Stop	860	860	2152	2152	2152	996	996	996	529		529	809		809	809	1359	1359	1359	1457	1457	1457	1649	1649	1649	448	448	448	285	585	585	1288	1288
Start	495	495	7	7	7	208	208	208	35		35	216		216	216	-	-	_	594	594	594	804	804	804	7	7	7	_	-	-	7	7
ength	122	122	717	717	717	153	153	153	146		146	131		131	131	453	453	453	288	288	288	282	282	282	149	149	149	195	195	195	429	429
Frame I		т									7			ю	က		-								7						7	7
SEQ ID NO:	806	908	814	814	814	815	815	815	816		816	817		817	L18 43		819	819	820	820	820	822	822	822	824	824	824	827	827	827	828	829

180100		Unknown (protein for IMAGE:4693777)	hypothetical protein	data source: SPTR, source key: Q9W232, evidence: ISS-putative-related to CG17807 PROTEIN	KIA:A1456 protein	neuronal thread protein AD7c-NTP	Similar to hypothetical protein PRO1722	unnamed protein product	data source: SPTR, source key: Q9VS60, evidence: ISS-putative-related to CG8576 PROTEIN	Unknown (protein for MGC:30540)	unnamed protein product	unnamed protein product	PRO0898	PRO1847	putative ion channel protein CATSPER2 variant 1	putative ion channel protein CATSPER2 variant 2	putative ion channel protein CATSPER2	unnamed protein product	unnamed protein product	unnamed protein product	KIAA0475 protein	Similar to KIAA0475 gene product	Unknown (protein for MGC:7673)	hypothetical protein	unnamed protein product	Similar to proline-serine-threonine phosphatase-interacting protein 2	PMEPA1 protein	solid tumor-associated 1 protein	STAG1/PMEPA1	Unknown (protein for IMAGE:3482764)	data source:SPTR, source key. Q9VS51, evidence:ISS-putative-related to CG8596 PROTEIN	GH22722p	KIAA1350 protein
;	Probability Score	7.00E-95	1.00E-33	2.00E-22	1.00E-07	2.00E-22	3.00E-22	5.00E-22	1.00E-162	1.00E-131	6.00E-93	5,00E-13	1.00E-12	2.00E-12	2.00E-11	2.00E-11	3.00E-10	1.00E-28	1.00E-27	1.00E-26	2.00E-37	9.00E-36	1.00E-05	1.00E-11	2.00E-11	4.00E-11	1.00E-149	1.00E-149	1.00E-149	1.00E-166	1.00E-165	5.00E-50	0
	GI Number F	g17391470	g14388555	g12854823	g7959173	g3002527	g16877294	g10439739	g12855517	g18044462	g14035948	g16553789	g11493409	g7770147	g16566353	g16566356	g16566350	g10437485	g10437569	g7020625	g3413912	g18044412	g13278492	g12698182	g16552221	g14198309	g9255809	g15824469	g16303742	g14714684	g12850324	g17861694	g7243081
	Stop	1288	196	196	196	1399	1399	1399	1469	1469	1469	096					847	029	0/9	0/9	448	448	448	974	974	974	856	826	856	1090	1090	1090	3454
	Start	7	7	7	7	1130	1130	1130	369	369	369	340	340	340	878	578	578	305	305	305	128	128	128	702	702	702	7	7	7	7	2	7	1220
	Length	429	65	65	65	8	06	06	367	367	367	207	207	207	8	8	90	122	122	122	107	107	107	16	91	16	285	285	285	363	363	363	745
	Frame L	2	2	2	2	2 <b>b</b>	<b>2</b> P	2b	3	æ	ю	-	_	_	7	7	2	7	7	2	2	7	7	Э	3	3	2	7	7	2	2	7	7
	SEQ ID NO: 1	829	830	830	830	832	832	832	835	835	835	838	838	838	839	628		840	840	840	841	841	841	.843	843	843	844	844	844	847	847	847	848

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	Unknown (protein for IMAGE:4236151)	Unknown (protein for MGC:22206)	AD031	unnamed protein product	CG4845 gene product	Hypothetical protein R13F6.10	putative ion channel protein CATSPER2 variant 1	putative ion channel protein CATSPER2 variant 2	putative ion channel protein CATSPER2	C-type lectin	lectin-like NK cell receptor LLT1	Similar to lectin-like NK cell receptor	evidence:NAS~putative~unclassifiable	KIAA0032	Regulator of chromosome condensation (RCC1) containing protein~data source:InterPro, source	key:IPR000408, evidence:ISS~putative	Similar to RIKEN cDNA 9030409E16 gene	evidence:NAS-hypothetical protein-putative	CG12341, gene product	Unknown (protein for MGC:5509)	Similar to hypothetical protein MGC5509	ashwin	hypothetical protein	unnamed protein product	Unknown (protein for IMAGE:4075924)	unnamed protein product	KIAA 1503 protein	unknown	Similar to KIAA0445 gene product	KIAA 1922 protein	dJ37C10.5 (KIAA0445)	Unknown (protein for MGC:2492)
Probability Score	0	1.00E-108	2.00E-73	0	1.00E-125	3.00E-52	3.00E-65	3.00E-65	8.00E-26	2.00E-24	2.00E-24	2.00E-24	2.00E-39	5.00E-16	6.00E-16		5.00E-61	5.00E-59	1.00臣-07	1.00E-132	1.00E-112	2.00E-19	2.00E-15	9.00E-14	1.00E-10	2.00E-19	4.00E-16	1.00E-15	3.00E-54	6.00E-46	5.00E-45	3,00E-39
GI Number	g18490104	g16924225	g12005635	g10434944	g7300581	g15145395	g16566353	g16566356	g16566350	g9837292	g6651065	g18044358	g12844231	g517115	g12856817		g17390179	g12858225	g7303701	g12654927	g13905264	g9022437	g12698182	g7021164	g16876883	g16549456	g7959267	g18027424	g13623425	g15620903	g8979803	g12804713
Stop	3454	3454	1147	2928	2928	2928	703	703	703	498	498	498	267	267	267		416	416	416	949	949	949	265	<b>2</b> 65	592	513	513	513	1011	1011	1011	263
Start	1220	1220	746	-	_	_	239	239	239	01	01	9	199	199	199		ю	ю	m	20	20	8	383	383	383	295	295	295	394	394	394	3
Length		745	134	926	916	926	155	155	155	163	163	163	123	123	123		138	138	138	300	300	300	70	70	70	73	73	73	206	206	506	87
Frame ]	2	ċ	7	1	-	-	7	7	7	-	-	-	-	-	-		ю	33	m	7	7	7	7	7	7		-	1	_	1		33
SEQ ID NO:		848	849	850	850	850	853	853	853	854	854	854	855	855	558 43		856	856	856	858	858	828	860	860	098	862	862	862	864	864	864	998

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Appolation	data source: SPTR, source key: 09U519, evi	data source:SPTR, source key:Q9U510, evidence:ISS~putative~related to PUTATIVE CENTRIN (FRAGMENT)	FYVE finger-containing phosphoinositide kinase	CG9867 gene product	GH05422p	predicted using Genefinder	చ	Similar to gene rich cluster, C8 gene	gene rich cluster, C8 gene	unnamed protein product	hypothetical protein	unnamed protein product	TRF2-interacting telomeric RAPI protein	TRF2-interacting telomeric RAP1 protein	TRF2-interacting telomeric RAP1 protein	d1511E16.2 (putative protein based on ESTs)	Similar to hypothetical protein dJ511E16.2	evidence:NAS~hypothetical protein~putative	evidence:NAS~hypothetical protein~putative	Unknown (protein for MGC:15606)	unnamed protein product	data source:SPTR, source key:Q05004, evidence:ISS~homolog to BRUSH BORDER 61.9 KDA PROTEIN PRECURSOR~putative	cervical cancer 1 protooncogene protein p40	cervical cancer protooncogene-2 protein	cervical cancer receptor	putative ion channel protein CATSPER2 variant 3	putative ion channel protein CATSPER2 variant 1	putative ion channel protein CATSPER2 variant 2	KIAA1126 protein	DNb-5
Drobability Score	9.00E-30	1.00E-29	3.00E-51	1.00E-117	1.00E-117	1.00E-30	1.00E-102	1.00E-102	2.00E-63	3.00E-12	2.00E-09	4.00E-09	0	0	0	7.00E-30	6.00E-23	2.00E-47	2.00E-47	1.00E-158	1.00E-158	6.00E-38	7.00E-16	3.00E-15	1.00E-13	2.00E-11	2.00E-11	2.00E-11	0	4.00E-52
		g12848210	£4200446	g7295961	g16182556	g3947579	g1633564	g12803453	g12805099	g10440282	g14388331	g16552221	g8102033	g13543358	g13325304	g3395506	g18606260	g12833402	g12843375	g14495648	g16549254	g12859694	g13624098	g16588706	g15077022	g16566359	g16566353	g16566356	g6329755	g4680229
Č,	263	263	535	1336	1336	1336	871	871	871	362	362	362	1295	1295	1295	260	260	643	643	1028	1028	1028	208	208	208	1320	1320	1320	1855	1855
Q to t	3 3	en .	68	. 7	7	2	224	224	224	132	132	132	8	90	8	٣	ю	212	212	192	192	192	7	7	7	973	973	973	7	7
[ on oth	mg 87	87	149	445	445	445	216	216	216	11	11	11	402	402	402	98	98	144	144	279	279	279	69	69	69	116	116	911	618	618
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SEO ID NO.		998	867	898	898	898	698	698	698	870	870	870	872	Z <i>L</i> 8		873	873	874	874	875	875	875	876	928	876	877	877	877	878	878

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Table 0	re Annotation	membrane-associated transporter protein B	Unknown (protein for IMAGE:3355813)	unnamed protein product	evidence:NAS-hypothetical protein-putative	unknown	Unknown (protein for MGC:12335)	dJ413H6.1.1 (hamster Androgen-dependent Expressed Protein LIKE PUTATIVE protein)	androgen-dependent expressed protein	RIKEN cDNA 1810033A06 gene	data source:SPTR, source key:Q9NRU6, evidence:ISS~homolog to human X 009	PROTEIN~putative	CG2006 gene product	Similar to RIKEN cDNA 5730455013 gene	data source:SPTR, source key: 081652, evidence: ISS-putative-related to PHYB1	PRO2972	unnamed protein product	unnamed protein product	unnamed portein product	unnamed protein product	Unknown (protein for MGC:15483)	unknown	unnamed protein product	unknown	Π88	unnamed protein product	unnamed protein product	unnamed portein product	PRO0764	PADI-H protein	unnamed protein product	p40	p40
	Probability Score	2.00E-40	4.00E-70	2.00E-66	4.00E-42	7.00E-05	1.00E-101	9.00E-95	5.00E-66	1.00E-92	1.00E-92		7.00E-34	0	1.00E-112	1.00E-111	4.00E-28	3.00E-26	3.00E-25	2.00E-15	1.00E-14	3.00E-14	1.00E-07	3.00E-07	7.00E-06	6.00E-16	2.00E-15	2.00E-14	7.00E-18	2.00E-17	8.00E-17	1.00E-08	2.00E-08
	GI Number	g15004313	g12653037	g15209730	g12861881	g2852636	g13937819	g4468307	g191315	g18043306	g12841374		g7301782	g17390000	g12857019	g14189976	g10437569	g10437485	g9280152	g10437485	g14043141	g10441877	g10434098	g18027726	g854065	g10435559	g10437485	g9280152	g14189960	g8980667	g10437569	g2072957	g2072966
											1085		1085	1096	1096	1096	374	374	374	360	360	360	582	582	582	558	558	558	459	459	459	1197	1197
	Start	7	65	65	65	2412	26	26	26	426	426		426	7	7	7	48	48	48	43	43	43	112	112	112	262	262	262	193	193	193	844	844
	Length	819	197	197	197	132	197	197	197	220	220		220	365	365	365	109	109	601	901	106	106	157	157	157	66	66	66	68	86	68	118	118
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	SEQ ID NO:		880										885	988	886	988 43		887	887	888	888	888	688	889	889	890	890	890	. 168	891	891	892	892

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Iduica	Annotation	ORF1; putative	SecY-independent transporter protein	NADH-ubiquinone oxidoreductase subunit 1	KIAA1657 protein	data source:SPTR, source key:Q9HA82, evidence:ISS~homolog to CDNA FLJ12089 FIS,	CLONE HEMBB1002550, WEAKLY SIMILAR TO HYPOTHETICAL UOG-1	TRH4	Similar to RIKEN cDNA 2310081H14 gene	BCE-1	unnamed protein product	PRO0657	put, ORF	Similar to RIKEN cDNA 2510005D08 gene	unnamed protein product	data source:SPTR, source key:Q21541, evidence:ISS~putative~related to M142.5 PROTEIN	unnamed protein product	Unknown (protein for MGC:11761)	PRO1902 : :	hypothetical protein	unnamed protein product	Similar to RIKEN cDNA 1110058L19 gene	data source:SPTR, source key:Q9VLU6, evidence:ISS~putative~related to CG7224 PROTEIN	data source:SPTR, source key:Q9VLU6, evidence:ISS-putative-related to CG7224 PROTEIN	KIAA0911 protein	calsyntenin-1 protein	calsyntenin-1 protein	unnamed protein product	Similar to RIKEN cDNA 1110066C01 gene	data source:SPTR, source key:Q9NZE8, evidence:ISS~homolog to MITOCHONDRIAL 39S	RIBOSOMAL PROTEIN L35 (MRP-L35)~putative	RIKEN cDNA 2510039018 gene	data source:SPTR, source key:Q9VQ60, evidence:ISS~putative~related to CG/289 PKU LEIN
	Probability Score	9.00E-08	4.00E-08	2.00E-07	8.00E-07	1.00E-67		1.00E-67	3.00E-50	9.00E-33	3.00E-11	7.00E-10	1.00E-09	3.00E-28	3.00E-28	1.00E-23	5.00E-41	5.00E-35	2.00E-26	2.00E-22	9.00E-22	7.00E-47	9.00E-32	9.00E-32	0	0	0	1.00E-104	2.00E-91	8.00E-78		0	0
		g337663	g10802923	g5869819	g13359187	g12845540		g13936285	g14715021	g3176973	g16550580	g6690248	g288145	g17390202	g14035896	g12848605	g10436992	g13784943	g6650810	g12698182	g16553789	g17390188	g12841765	g12835436	g4240311	g11558246	g11558248	g14036042	g18088345	g12849796		g15277565	g12846932
	Stop	1197	510	210	510	1105		1105	1105	773	485	485	485	193	193	193	342	342	557	557	557	375	375	375	3086	3086	3086	572	572	572		1649	1649
	Start	844	_	_		392	٠	392	392	381	300	300	300	7	7	7	28	28	192	192	192	8	8	8	9	9	9	ю	က	က		n	m
	Length	118	170	170	170	238		238	238	131	62	62	62	64	4	64	95	95	122	122	122	94	94	94	1027	1027	1027	190	190	190		549	549
	Frame	-	-	_		7							æ				-		ю	3	3		-	-	က	ĸ	n	33	т	က		3	c.
	ö					968		968	968	897	868	868	868	006	006	006 43		106	206	902	905	806	806	806	910	910	910	911	911	911		912	912

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Annotation	Similar to RIKEN cDNA 2510039O18 gene	COBW-like protein	dopamine-responsive protein	COBW-like protein	PRO0657	hypothetical protein	Similar to RIKEN cDNA 1700048E23 gene	data source:SPTR, source key:O73884, evidence:ISS~putative~related to PUTATIVE	PHOSPHATASE	putative phosphatase	unnamed protein product	unnamed protein product	paraneoplastic neuronal antigen MA1	paraneoplastic onconeuronal protein MA1	coenzyme A diphosphatase	data source: MGD, source key: MGI:1914778, evidence: ISS-nudix (nucleoside diphosphate	linked moiety X)-type motif 7~putative	data source: MGD, source key: MGI:1914778, evidence: ISS~nudix (nucleoside diphosphate	linked moiety X)-type motif 7~putative	4-1BB-mediated signaling molecule	evidence:NAS~hypothetical protein~putative	RIKEN cDNA 2410005L11 gene	hypothetical protein	thyroid receptor interactor	proteasome subunit SUG1	hypothetical protein	unnamed protein product	Similar to RIKEN cDNA 9430029K10 gene	unnamed protein product	hypothetical protein	unnamed protein product	hypothetical protein
Probability Score	1.00E-138	1.00E-87	1.00E-87	1.00E-87	6.00E-05	6.00E-07	1.00E-142	1.00E-117		6.00E-57	4.00E-72	5.00E-88	2.00E-36	9.00E-36	5.00E-35	7.00E-35		2.00E-33		4.00E-46	3.00E-34	2.00E-33	1.00E-71	1.00E-46	1.00E-46	3.00E-07	5.00E-07	6.00E-06	5.00E-10	9.00E-10	1.00E-09	0
GI Number I	g13325391	g13543692	g13177623	g15488579	g6690248	g12053359	g18490618	g12839952		g3218467	g14042106	g7023022	g14030861	g18478557	g12746410	g12836479		g12847124		g16024938	g12845847	g18490950	g6562162	g695370	g3193258	g12698192	g16550881	g15929032	g10437485	g16041132	g7020625	g6599215
Stop	1649	908	908	908	511	295	1039	1039		1039	925	1547	1547	1547	727	727		727		917	917	917	1669	1669	1669	536	536	536	286	286	286	1664
Start	3	225	225	225	338	53	296	296		362	542	231	231	231	149	149		149		ю	ю	က	1244	1244	1244	309	309	309	62	62	62	т
Length	549	194	194	194	58	81	248	248		248	128	439	439	439	193	193		193		305	302	305	142	142	142	9/	9/	9/	75	75	75	554
Frame		8								7	7	ю	ю	m	2	7		7		3	ю	ю	2	7	7	С	ъ	ю	2	7	7	က
SEQ ID NO: Frame	912	913	913	913	916	917	918	918		918	919	920	920	920	126 439			921		922	922	922	923	923	923	927	927	927	931	931	931	934

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Calor	Annotation	unnamed protein product	interaptin	unnamed protein product	Similar to hypothetical protein FLJ20093	unnamed protein product	data source:SPTR, source key:Q9PTD5, evidence:ISS~putative~related to KIAA0009 PROTEIN	data source:SPTR, source key:Q15390, evidence:ISS~homolog to HYPOTHETICAL PROTEIN	KIAA0009~putative	Similar to RIKEN cDNA 2610016C23 gene	unnamed protein product	Unknown (protein for IMAGE:4049523)	no similarities to reported gene products	d1469A13.2 (Novel protein)	data source:SPTR, source key:Q9H8P4, evidence:ISS~homolog to CDNA FLJ13346 FIS,	CLONE: OVARC1002107~putative	data source:SPTR, source key:Q9H8P4, evidence:ISS~homolog to CDNA FLJ13346 FIS,	CLONE OVARC1002107~putative	hypothetical protein FLJ20333	KIAA1333 protein	unnamed protein product	KIAA1201 protein	Unknown (protein for MGC:20455)	KIAA1533 protein	Similar to ubiquitin associated and SH3 domain containing, A	nm23-phosphorylated unknown substrate	UBASH3A protein	small acidic protein	small acidic protein	small acidic protein	PRO0522	RanBPM	RANBPM
	31 Number Probability Score	0	1.00E-13	1.00E-149	1.00E-106	7.00E-89	1.00E-60	3.00E-60		6.00E-59	1.00E-112	1.00E-72	4.00E-09	1.00E-40	1.00E-21		1.00E-21		0	0	0	0	3.00E-66	3.00E-66	4.00E-28	4.00E-28	1.00E-11	2.00E-62	2.00E-62	2.00E-62	4.00E-29	4.00E-18	4.00E-18
	GI Number	g7023623	g3549261	g7019969	g12805451	g10438722	g12847516	g12855709		g17512323	g16550264	g16924243	g1504016	g14717079	g12857138		g12839239		g13111835	g7243047	g7020359	g6330416	g15559417	g7959333	g14043111	g16304176	g7799912	g1915967	g16741003	g13937979	g11493508	g15080674	g13194576
	Stop	1664	1664	2495	2495	2495	891	891		891	1066	1066	1066	245	245		245		1938	1938	1938	1007	1007	1007	511	511	511	794	794	794	1298	1298	1298
	Start	3	٣	1698	1698	1698	277	277		277	386	386	386	m	m		3		_	-	_	ю	က	т	20	20	20	432	432	432	888	888	888
	Length	554	554	566	366	266	205	205		205	227	227	227	81	81		81		646	646	949	335	335	335	154	154	154	121	121	121	137	137	137
	Frame I	က	ю	33	m	m		_		1	2	7	7	ю	33		m		<b>-</b>	_	-	3	ĸ	33	2	7	2	3	3	3	က	3	c
	SEQ ID NO: 1	934	934	935	935	935	937	937		937	938	938	938	939	626	44	<del>5</del> 939		940	940	940	943	943	.943	945	945	945	947	947	947	948	. 948	948

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Table 3	Amoranon	Unknown (protein for MGC:6471)	Mid-1-related chloride channel 1	Similar to KIAA0761 protein	unknown	Unknown (protein for IMAGE:3882977)	polyglutamine-containing protein	KIAA1865 protein	URAX1	TGF-beta induced apotosis protein 3	unnamed protein product	unnamed protein product	unnamed protein product	ORF_ID:alr3807~hypothetical protein	putative prostate cancer susceptibility protein HPC2/ELAC2	putative prostate cancer susceptibility protein	putative prostate cancer susceptibility protein	AD029	KIAA1704 protein	lipopolysaccharide specific response-7 protein	unnamed protein product	unnamed protein product	KIAA1452 protein	unnamed protein product	evidence:NAS~hypothetical protein~putative	156 kDa Protein	chymotrypsin-like protein	CHORD containing protein-1	RIKEN cDNA 1110001009 gene	HERV-E envelope glycoprotein	HERV-E envelope glycoprotein	HERV-E envelope protein	hypothetical protein
	Probability Score	3.00E-20	0	0	0	1.00E-134	4.00E-81	4.00E-81	0	0	0	1.00E-58	1.00E-17	2.00E-11	0	0	0	1.00E-107	1.00E-106	7.00E-93	0	0	0	1.00E-154	1.00E-120	3.00E-09	6.00E-98	4.00E-95	6.00E-92	1.00E-19	1.00E-19	5.00E-17	2.00E-53
		g14715019	g14278953	g13096892	g4588787	g18088178	g10636484	g14017947	g14549207	g17907795	g17049034	g7020399	g10435659	g17132941	g10880933	g12804973	g13278771	g12005505	g12697953	g7920153	g7022590	g10435073	g7959163	g16550386	g12836009	g296164	g12002207	g6581056	g17390873	g2587027	g2587024	g1049232	g13276669
ć	otop	428	1934	1934	1934	1057	1057	1057	2022	2022	2022	2867	2867	2867	2534	2534	2534	1157	1157	1157	2266	2266	2266	1256	1256	1256	1247	1247	1247	627	627	627	1523
Ċ	Start	102	240	240	240	7	7	7	926	916	916	2046	2046	2046	18	81	8	270	570	570	7	7	7	252	252	252	744	744	744	112	112	112	1155
,	Length	109	265	265	565	352	352	352	349	349	349	274	274	274	839	839	839	196	196	196	755	755	755	335	335	335	168	168	168	172	172	172	123
	Frame	m	3	ю	33	7	7	7	1	-	-	ю	ю	3	3	3	ю	က	3	33	7	2	7	æ	٣	ю	m	ю	Э	1	-	-	m
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Annotation	HYPOTHETICAL TRANSMEMBRANE PROTEIN	carboxypeptidase s	ORF YJL172w	Unknown (protein for MGC:29802)	Unknown (protein for IMAGE:3502817)	Na/taurocholate cotransporting polypeptide 1	HERV-E envelope glycoprotein	HERV-E envelope glycoprotein	HERV-E envelope protein	stromal antigen 3, (STAG3)	stromal antigen 3	stag3	protocadherin-beta11	protocadherin beta 11	protocadherin beta 14	unnamed protein product	olfactory receptor	BC319430_5	dJ85M6.3 (similar to testis-specific protein PBS13)	unnamed protein product	bA353J17.2 (testis specific protein similar to TCP11 (t-complex 11 (a murine tcp homold	unnamed protein product	PRO0663	unnamed protein product	KIAA0339 protein	wsv091	retinițis pigmentosa GTPase regulator-like protein	Unknown (protein for MGC:23445)	Unknown (protein for MGC:17998)	CG8616 gene product	unnamed protein product	unnamed protein product
Probability Score	9.00E-17	1.00E-09	1.00E-09	1.00E-153	1.00E-153	4.00E-46	2.00E-20	2.00E-20	8.00E-19	7.00E-24	4.00E-10	3.00E-08	1.00E-06	1.00E-06	4.00E-06	9.00E-42	1.00E-40	1.00E-40	2.00E-80	2.00E-80	4.00E-60	6.00E-20	5.00E-16	1.00E-15	1.00E-128	3.00E-18	3.00E-18	1.00E-173	1.00E-122	1.00E-36	1.00E-126	1.00E-108
GI Number	g17430957	g3594	g1008367	g17512162	g15082287	g2522348	g2587027	g2587024	g1049232	g6114601	g13195163	g3090423	g14009459	g5457029	g5457035	g16550813	g2792016	g4092819	g15131403	g7023926	g17426495	g7020440	g6690252	g16552221	g6683126	g17016489	g9837385	g15990553	g16041702	g7295275	g14272632	g16551700
Stop	708	708	708	811	811	811	466	466	466	236	236	236	356	326	356	511	511	511	1239	1239	1239	424	424	424	1141	1141	1141	1997	1997	1997	701	701
Start	247	247	247	7	7	7	140	140	140	30	30	30	3	က	ᠻ	86	86	86	163	163	163	188	188	188	7	7	7	216	216	216	m	m
Length	154	154	154	270	270	270	109	109	109	69	69	69	118	118	118	138	138	138	329	359	329	79	79	79	380	380	380	594	594	594	233	233
Frame			<del></del>	2	2	7	7	7	7	33	ო	m	Э	က	ю	7	7	7	-			2	7	7	7	7	7	٣	m	က	m	33
SEO ID NO:	1008	1008	1008	1009	6001	6001	1013	1013	1013	1014	1014	1014	1017	1017	L101 44		1019	1019	1020	1020	1020	1021	1021	1021	1022	1022	1022	1023	1023	1023	1024	1024

Table 5	Annotation	evidence:NAS-hypothetical protein-putative	Unknown (protein for MGC:3169)	unnamed protein product	Similar to hypothetical protein MGC3169	Unknown (protein for IMAGE:3154539)	Unknown (protein for IMAGE:3627317)	spinster-like protein	DP-ribosylation-like factor 6 interacting protein 6	DP-ribosylation-like factor 6 interacting protein 6~data source:MGD, source key:MGI:1929507,	evidence:ISS~putative	DP-ribosylation-like factor 6 interacting protein 6~data source:MGD, source key:MGI:1929507, evidence:ISS~putative	d1469A13.2 (Novel protein)	data source:SPTR, source key:Q9H8P4, evidence:ISS-homolog to CDNA FLJ13346 FIS,	CLOINE OVARCIOUZIO/~putative	data source:SPTR, source key:Q9H8P4, evidence:ISS~homolog to CDNA FLJ13346 FIS,	CLONE OVARC1002107~putative	Similar to CG4452 gene product	hypothetical protein	hypothetical protein	hypothetical protein	KIAA0731 protein	unnamed protein product	larp gene product	hypothetical protein	unnamed protein product	Similar to proline-serine-threonine phosphatase-interacting protein 2	put. ORF	PRO0657	platelet glycoprotein VI-3	evidence:NAS~hypothetical protein~putative	unnamed protein product
	Probability Score	1.00E-79	1.00E-178	1.00E-178	1.00E-163	1.00E-44	2.00E-23	2.00E-23	1.00E-106	1.00E-105		1.00E-103	1.00E-110	1.00E-71		1.00E-71		1.00E-179	1.00E-176	1.00E-154	3.00E-22	0	5.00E-56	9.00E-32	1.00E-11	2.00E-11	4.00E-11	8.00E-08	1.00E-07	6.00E-06	1.00E-107	1.00E-107
	GI Number 1	g12843884	g12654711	g10438670	.g15928500	g15079262	g13544043	g12003980	g18043473	g12854930		g12846953	g14717079	g12857138		g12839239		g14198207	g4200234	g4200238	g9967222	g3882183	g7022373	g10726821	g12698182	g16552221	g14198309	g288145	g6690248	g9955914	g12847051	g16549898
	Stop	701	211	116	717	1675	1675	1675	1389	1389		1389	1451	1451		1451		896	896	896	744	1683	1683	1683	260	260	260	1164	1164	1164	639	639
	Start	3	т	ю	m	806	806	806	610	610		610	831	831		831		30	30	30	472	<b></b> -	_	-	288	288	288	928	876	876		-
	Length	233	325	325	325	256	256	256	260	260		260	207	207		207		313	313	313	91	561	561	561	91	91	16	79	79	79	213	213
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	SEQ ID NO:	1024	1025	1025	1025	1026	1026	1026	1027	1027		1027	1030	0030	144	0601		1032	1032	1032	1033	1034	1034	1034	1035	1035	1035	1037	1037	1037	1038	1038

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Annotation	Similar to RIKEN cDNA 2600001B17 gen	unnamed protein product	unnamed protein product	unnamed protein product	putative protein tyrosine kinase	Nori-2p	dJ28H20.2 (novel protein)	hypothetical protein SP192	unknown	unnamed protein product	gamma-synergin	gamma-synergin	gamma-synergin	putative prostate cancer susceptibility protein	putative prostate cancer susceptibility protein HPC2/ELAC2	putative prostate cancer susceptibility protein	Zinc finger, C2H2 type containing protein-data source: Pfam, source key: PF00096,	evidence:ISS-putative	evidence:NAS-hypothetical protein-putative	hypothetical protein	Unknown (protein for IMAGE:4109498)	unnamed protein product	Similar to hypothetical protein FLJ13955	dJ462O23.2 (novel protein)	data source:SPTR, source key:Q9VEZ4, evidence:ISS~putative~related to CG5013 PROTEIN	Beta defensin containing protein~data source:Pfam, source key:PF00711, evidence:ISS~putative	CG5013 gene product	KIAA1327 protein	antigen containing epitope to monoclonal antibody MMS-85/12	unnamed protein product	KIAA1584 protein	hypothetical protein
Drohability Coore	3.00E-71	2.00E-54	2.00E-54	2.00E-54	1.00E-140	1.00E-140	1.00E-140	2.00E-93	2.00E-93	2.00E-93	0	0	0	0	0	0	3.00E-17		7.00E-82	2.00E-79	5.00E-26	1.00E-178	1.00E-152	6.00E-75	1.00E-105	1.00E-57	2.00E-42	0	0	0	2.00E-63	2.00E-38
GI Mumber	7037	g14042588	g14042283	g14035872	g16307277	g14715460	g9588402	g18490805	g10503966	g10437401	g5733726	g5733728	g7341344	g12804973	g10880933	g13278771	g12849011		g12844368	g13358924	g13623489	g10436267	g16359295	g5459205	g12834129	g12855876	g7300099	g7243035	g2384711	g10438646	g10047243	g6468312
S. C.	500 639	893	893	893	984	984	984	488	488	488	3281	3281	3281	2265	2265	2265	1073		533	533	533	991	991	991	620	620	620	9064	9064	9064	573	573
Ç tari	otali 1	450	450	450	20	20	20	6	ო	က	က	т	ю	721	721	721	762		٣	က	m	7	7	7	Э	æ	3	7	7	7	70	20
I on ath	213	148	148	148	305	305	305	162	162	162	1093	1093	1093	515	515	515	104		177	177	177	330	330	330	206	206	206	3021	3021	3021	168	168
Dromo	rialile 1	3	т	æ	-	-	-	٣	3	3	က	33	Э	_	_	-	3		3	3	က	7	7	2	3	3	m	2	7	7	-	1
SEO ID NO.	1038	1039	1039	1039	1042	1042	1042	1043	1043	1043	1045	1045	1045	1047	1044		1048		1049	1049	1049	1050	1050	1050	1052	1052	1052	1057	1057	1057	1058	1058

Table 5	Annotation	unnamed protein product	DWF-1	Ellis-van Creveld syndrome protein	Ellis-van Creveld syndrome protein	FLAMINGO 1	Similar to D.melanogaster cadherin-related tumor suppressor	MEGF3	KIAA0732 protein	hypothetical protein	Unknown (protein for MGC:10151)	Unknown (protein for MGC:4713)	Similar to CG4452 gene product	hypothetical protein	hypothetical protein	betaPix-b	betaPix-c	betaPix-d	Dretnnbia	unnamed protein product	down-regulated by Ctnnb1, a	RNA binding protein	unnamed protein product	data source:SPTR, source key:P10962, evidence:ISS~putative~related to MAK16 PROTEIN	data source:SPTR, source key:O46078, evidence:ISS-putative-related to EG:39E1.1 PROTEIN	(CG11596 PROTEIN)	EG:39E1.1 gene product	LD42227p	KIAA1900 protein	unnamed protein product	X-linked retinopathy protein	hypothetical protein	unnamed protein product
	Probability Score	2.00E-38	0	0	0	0	0	1.00E-176	7.00E-33	1.00E-159	1.00E-141	1.00E-128	4.00E-69	8.00E-63	5.00E-58	1.00E-114	1,00E-114	1.00E-61	1.00E-107	1.00E-106	1.00E-106	1.00E-173	1.00E-172	1.00E-154	0		8.00E-88	8.00E-88	2.00E-44	2.00E-44	1.00E-08	5.00E-08	4.00E-07
	GI Number	g7019973	g7271903	g7141125	g7141127	g9828190	g1665821	g6681360	g14133213	g4884468	g15929494	g18380937	g14198207	g4200234	g4200238	g10504263	g10504266	g15420378	g13442786	g16551687	g17511709	g13625186	g14042167	g12853682	g12846470		g10728401	g15292213	g15620859	g16549994	g299471	g12698182	g10433567
	Stop	573	3110	3110	3110	1568	1568	1568	1137	1169	1169	1169	823	823	823	1920	1920	1920	1021	1021	1021	1137	1137	1137	1387		1387	1387	420	420	<b>48</b>	648	648
	Start	70	3	٣	т	159	159	159	556	ო	n	ო	119	119	119	1285	1285	1285	170	170	170	226	226	226	98		98	98	124	124	397	397	397
	Length	891	1036	1036	1036	470	470	470	194	389	389	389	235	235	235	212	212	212	284	284	284	304	304	304	434		434	434	66	66	84	84	84
	Frame		ε	3	Э	ю	ε	æ	-	Э	က	က	7	7	2	-		_	7	2	7		_	1	7		7	7	-		-	7	7
٠	SEQ ID NO:	1058	1060	1060	1060	1901	1061	1901	1062	1064	1064	1064	1065	1065	1065	6901 4		6901	1071	1071	1071	1073	1073	.1073	1074		1074	1074	1075	1075	9201	1076	1076

Table 5

Annotation	K14 4 1655 profein	unnamed protein product	Similar to hypothetical protein PRO1722	Hypothetical protein F22B7.10	unnamed protein product	CG6659 gene product	PRO0657.	unnamed protein product	put, ORF	similar to MLN 64; similar to 138027 (PID:g2135214)	Similar to steroidogenic acute regulatory protein related	Unknown (protein for MGC:14607)	sprouty-4A	sprouty-4	sprouty 4	data source:SPTR, source key:Q9VBL1, evidence:ISS~putative-related to CG5901 PROTEIN	unnamed protein product	unnamed protein product	unnamed protein product	PRO1847	unnamed protein product	PRO1902	hypothetical protein	unnamed protein product	B-cell growth factor	Similar to KIAA0643 protein	KIAA0643 protein	unnamed protein product	evidence:NAS~hypothetical protein~putative	dJ821D11.1 (PUTATIVE protein)	Unknown (protein for IMAGE:3461401)	unnamed protein product
Drobokility Core	Frobability Scor	3.00E-24	2.00E-23	1.00E-17	3.00E-15	9.00E-06	3.00E-10	1.00E-08	1.00E-08	5.00E-39	5.00E-39	5.00E-39	0	1.00E-169	1.00E-169	4.00E-06	1.00E-34	1.00E-34	3.00E-30	6.00E-16	6.00E-15	3.00E-14	2.00E-16	2.00E-09	4.00E-07	0	0	1.00E-138	3.00E-65	8.00E-22	0	0
		g10439739	g14249973	g14574118	g16553246	g7293494	g6690248	g16550580	g288145	g4309949	g13111774	g13543615	g12655913	g4850326	g5917720	g12852725	g10041644	g10041654	g10041649	g7770147	g10437752	g6650810	g16041152	g10435380	g522145	g16877653	g3327100	g10435262	g12855287	g4200330	g16306780	g16552089
300	dos	4 4 0	440	992	99/	99/	466	466	466	1224	1224	1224	1916	1916	1916	138	998	998	998	854	854	854	966	966	394	1328	1328	1328	959	959	3037	3037
1000	Start	n m	ю	143	143	143	305	305	305	892	892	892	792	792	792	-	186	186	981	552	552	552	619	619	194	39	39	39	288	288	164	164
1	Lengun	146	146	208	208	208	<b>24</b>	24	54	1111	111	111	375	375	375	46	227	22 <i>7</i>	227	101	101	101	126	126	29	430	430	430	224	224	958	958
	Frame 3	. w	3	2	2	2	7	2	7	_	_	-	ю	ю	Э	-	С	Э	ю	33	m	ю	1	-	7	ъ	Э	ю	٣	٣	2	7
SEC ID NO.		8/01	1078	1079	1079	1079	1081	1081	1081	1084	1084	1084	1088	1088	8801		1001	1601	1001	1093	1093	1093	1094	1094	1095	1097	1097	1097	1011	1101	1102	1102

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Table 5	Annotation	evidence:NAS~putative~unclassifiable	unnamed protein product	unnamed protein product	CG12251 gene product	Similar to KIAA0514 gene product	KIAA0514 protein	hypothetical protein	data source:SPTR, source key: Q9W232, evidence: ISS-putative-related to CG17807 PROTEIN	CG17807 gene product	unnamed protein product	germ cell-specific gene 1	data source.MGD, source key:MGI:1194499, evidence:ISS~germ cell-specific gene 1~putative	Unknown (protein for IMAGE:3482764)	data source.SPTR, source key:Q9VS51, evidence:ISS-putative~related to CG8596 PROTEIN	GH22722p	gene trap ankyrin repeat containing protein	unnamed protein product	unnamed protein product	Unknown (protein for MGC:13310)	Unknown (protein for IMAGE:3344281)	Unknown (protein for MGC:9923)	RALBPI	Unknown (protein for MGC:16228)	RalBP1-associated EH domain protein Reps1	melastatin	melastatin 1	transient receptor potential-related protein	fibrinogen A-alpha-chain	fibrinogen A-alpha chain	SES antigen	hypothetical protein	unnamed protein product
	Probability Score	1.00E-105	1.00E-156	1.00E-146	1.00E-12	1.00E-151	1.00E-151	0	8.00E-96	6.00E-89	4.00E-68	2.00E-59	9.00E-37	1.00E-135	1.00E-134	1.00E-29	2.00E-24	7.00E-07	1.00E-05	2.00E-17	1.00E-16	1.00E-13	0	0	0	1.00E-13	2.00E-13	2.00E-06	2.00E-05	2.00E-05	5.00E-05	1.00E-29	7.00E-24
		g12857435	g14272790	g15209786	g7303350	g15079708	g3043552	g14388555	g12854823	g7291441	g12405521	g18606449	g12839367	g14714684	g12850324	g17861694	g12963869	g10438501	g7020282	g14250716	g16877906	g15030268	g13625166	g15706481	g2677843	g3047242	g3243075	g8131903	g1304179	g3789960	g531261	g12698182	g7020440
	Stop	3037	1115	1115	1115	1007	1007	2115	2115	2115	1078	1078	1078	861	861	861	493	493	493	1667	1667	1667	2888	2888	2888	291	291	291	633	633	633	933	933
	Start	164	210	210	210	72	72	910	910	910	7	7	7			-	308	308	308	480	480	480	60	ю	m	_	_	-	-	-	-	295	562
	Cength	958	302	302	302	312	312	402	402	402	329	359	359	287	287	287	62	62	62	396	396	366	962	362	962	76	76	26	211	211	211	124	124
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	SEQ ID NO:	1102	1106	1106	1106	1107	1107	1108	1108	1108	1110	1110	1110	1111	1111	II 144		1112	1112	1113	1113	1113	1114	1114	1114	1115	1115	1115	1116	1116	1116	1117	1117

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Annotation	PRO2550	unnamed protein product	KIAA1108 protein		ATFa-associated factor	unnamed protein product		Unknown (protein for MGC:11276)	Unknown (protein for MGC:2694)	DNA segment, Chr 7, Wayne State University 86, expressed-data source: MGD, source	key:MGI:106442, evidence:ISS~putative	dJ659119.1 (KIAA0435 protein)	KIAA0435	unnamed protein product	unnamed protein product	hypothetical protein	unnamed protein product	data source:SPTR, source key:Q14699, evidence:ISS~homolog to HYPOTHETICAL PROTEIN	KIAA0084 (HA2022) (FRAGMENT)-putative	The ha2022 gene product is novel.	unnamed protein product	unnamed protein product	unnamed protein product	ınnamed protein product	PRO0657	put, ORF	unnamed protein product	unnamed protein product	KRAB-zinc finger protein KZF-1	WW domain binding protein-1	Similar to WW domain binding protein 1	Similar to WW domain binding protein 1
ore	PR(	uun	ΣĀ	Tbc1	AT	uun	p621	Ľ,	E C	N	key	dJ6	Ŋ	un .	un	hyp	un	dat	X	Ĕ	nn	un	un	un	PR	put	nu	JUN	KK	×	Sin	Sin
Probability Score	3.00E-23	1.00E-38	1.00E-38	2.00E-35	0	0	0	7.00E-39	1.00E-26	3.00E-26		2.00E-40	2.00E-40	8.00E-09	8.00E-07	8.00E-07	0	1.00E-138		7.00E-61	2.00E-46	2.00E-46	2.00E-46	3.00E-11	7.00E-10	1.00E-09	1.00E-08	3.00E-07	6.00E-07	4.00E-40	4.00E-40	2.00E-38
	g11493483	g14041976	g5689553	g988221	g7228149	g7022872	g5101772	g12804117	g12652917	g12851605		g11932167	g2662151	g10433567	g10440282	g14388331	g16549800	g12852088		g577299	g14139788	g12405797	g12405805	g16550580	g6690248	g288145	g10435738	g14042822	g2810991	g4205084	g14603081	g18044295
Stop	933	486	486	486	4065	4065	4065	999	999	999		573	573	287	287	287	2072	2072		2072	460	460	460	485	485	485	597	597	297	276	576	576
Start	562	61	19	19	184	184	184	$\epsilon$	ы	'n		43	43	48	48	48	552	552		552	119	119	119	300	300	300	436	436	436	34	34	34
Length	124	142	142	142	1294	1294	1294	188	188	188		177	177	80	80	80	207	507		507	114	114	114	62	62	62	54	54	54	181	181	181
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SEQ ID NO: 1	1117	1118	1118	1118	1119	6111	1119	1120	1120	1120		1121	1121	1123	¥ 1123		1124	1124		1124	1125	1125	1125	1126	1126	1126	1128	1128	1128	1129	1129	1129

Table 5   SEQ ID NO. Frame Length Start   Stop   GINumber   Probability Score   1131   2   107   569   889   £5726235   2.00E-19   unknown protein US/2   115   434   778   £74444   2.00E-28   vanilloid receptor type! Like protein I   1132   2   115   434   778   £74444   2.00E-28   vanilloid receptor type! Like protein I   1132   1   115   6.00E 8   stretch-inhibitable nonselective channel (SIC)   1133   1   180   154   693   £743155   6.00E-82   Stretch-inhibitable nonselective channel (SIC)   1133   1   180   154   693   £743155   6.00E-82   Stretch-inhibitable nonselective channel (SIC)   1133   1   180   154   693   £743155   6.00E-82   Stretch-inhibitable nonselective channel (SIC)   1135   1   57   328   498   £70437485   5.00E-21   Unknown (protein Product I   1135   1   57   328   498   £70437485   5.00E-91   Unmanned protein product   1136   3   129   405   791   £70439739   6.00E-92   unmanned protein product   1136   3   129   405   791   £70439739   6.00E-25   unmanned protein product   1137   1   546   1321   2958   £7043574   0   Unmanned protein product   1137   1   546   1321   2958   £702574   0   Unmanned protein product   1142   3   398   504   1697   £70486522   5.00E-17   unmanned protein product   1142   3   398   504   1697   £70486522   5.00E-17   unmanned protein product   1145   2   7711   1151   6283   £7054374   1.00E-18   unmanned protein product   1145   2   7711   1151   6283   £7054374   1.00E-18   unmanned protein product   1146   2   314   227   1168   £7061302   1.00E-19   unmanned protein product   1146   2   314   227   1168   £7061302   1.00E-19   unmanned protein product   1146   2   314   227   1168   £7061302   1.00E-18   unmanned protein product   1146   2   314   227   1168   £7061302   1.00E-18   unmanned protein product   1146   2   314   227   1168   £7061302   1.00E-18   unmanned protein product   1146   2   314   227   1168   £7061303   1.00E-18   unmanned protein product   1146   2   314   227   1168   £7061303   1.00E-28   unmanned protein product   1146   2																												
EQ ID NO: Frame Length       Start       Stop       GI Number       Probability Score         1131       2       107   569       889       g5726235       2.00E-19         1132       2       115       434       778       g7544146       2.00E-28         1132       2       115       434       778       g5782444       2.00E-28         1132       2       115       434       778       g5782444       2.00E-28         1133       1       180       154       693       g7243155       6.00E-82         1133       1       180       154       693       g13623235       5.00E-21         1133       1       180       154       693       g13623235       5.00E-21         1133       1       180       154       693       g13623235       5.00E-21         1134       3       128       498       g10437485       9.00E-10         1135       1       57       328       498       g10439739       6.00E-25         1136       3       129       405       791       g10439739       6.00E-26         1136       3       129       405       791       g10439739		Annotation		1		nel (SIC)		7070													4213					١٥.		
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			1131	1132	1132	1132	1133	1133	1133	. 1135	1135	1135	1136	1136	1136	1137	_	_	1138	1142	1142	1142	1145	1145	1145	1146	1146	1146

plod			10E 8 or less:	ES1s: Probabinty vauce 1.02-0 of 1939;  Full Length sequences: Probability  value= 1.0E-10 or less	ESTs: fasta E value=1.06E-6; Assembled ESTs: fasta Identity= 95% or greater and Match length=200 bases or greater; fastx E value=1 0E-8 or less: Full Length	sequences: fastx score=100 or greater	Probability value= 1.0E-3 or less	PFAM hits: Probability value= 1.0E-3 or less; Signal peptide hits: Score= 0 or greater
Parameter Threshold		Mismatch <50%		ES1s: Probabinty vauv Full Length sequences: value= 1.0E-10 or less	ESTs: fasta E va ESTs: fasta Iden Match length=21 E value=1 0E-8	sequences: fastx	Probability valu	PFAM hits: Pro less; Signal peptide
TABLE 6 Reference	Applied Biosystems, Foster City, CA.	Applied Biosystems, Foster City, CA; Paracel Inc., Pasadena, CA.	Applied Biosystems, Foster City, CA.	Altschul, S.F. et al. (1990) J. Mol. Biol. 215:403-410; Altschul, S.F. et al. (1997) Nucleic Acids Res. 25:3389-3402.	Pearson, W.R. and D.J. Lipman (1988) Proc. Natl. Acad Sci. USA 85:2444-2448; Pearson, W.R. (1990) Methods Enzymol. 183:63-98; and	Smith, T.F. and M.S. waterman (1901) Adv. Appl. Math. 2:482-489.	Henikoff, S. and J.G. Henikoff (1991) Nucleic, Acids Res. 19:6565-6572; Henikoff, J.G. and S. Henikoff (1996) Methods Enzymol. 266:88-105; and Attwood, T.K. et al. (1997) J. Chem. Inf. Comput. Sci. 37:417-424.	Krogh, A. et al. (1994) J. Mol. Biol. 235:1501-1531; Sonnhammer, E.L.L. et al. (1988) Nucleic Acids Res. 26:320-322; Durbin, R. et al. (1998) Our World View, in a Nutshell, Cambridge Univ. Press, pp. 1-350.
Description	that removes vector sequences and masks bases in nucleic acid sequences.	A Fast Data Finder useful in comparing and annotating amino acid or nucleic acid sequences.	A program that assembles nucleic acid sequences.	A Basic Local Alignment Search Tool useful in sequence Altschul, S.F. et al. (1990) J. Mol. Biol. 215:403- ES1s: Probability value= 1.02-9 of 1.535 similarity search for amino acid and nucleic acid 410; Altschul, S.F. et al. (1997) Nucleic Acids Full Length sequences: Probability sequences. BLAST includes five functions: blastp, Res. 25:3389-3402.	blasth, blasth, totasth, and totasth.  A Pearson and Lipman algorithm that searches for similarity between a query sequence and a group of sequences of the same type. FASTA comprises as least	five functions: fasta, tfasta, fastx, tfastx, and ssearch.	A BLocks IMProved Searcher that matches a sequence against those in BLOCKS, PRINTS, DOMO, PRODOM, Acids Res. 19:6565-6572; Henikoff, J.G. and Sand Standard Acids Res. 19:6565-6572; Henikoff, J.G. and Sandard Acids Res. 19:6565-6572; Henikoff, J.G. and J.G.	An algorithm for searching a query sequence against hidden Markov model (HMM)-based databases of protein family consensus sequences, such as PFAM.
Весетат	CTURA	ABIPARACEL FDF	ABI AutoAssembler	BLAST	FASTA	451	BLIMPS	HMMER

Program	Description	TABLE 6 Reference	Parameter Threshold
ProfileScan	An algorithm that searches for structural and sequence Gribskov, M. et al. (1988) CABIOS 4:61-66; motifs in protein sequences that match sequence patterns Gribskov, M. et al. (1989) Methods Enzymol. defined in Prosite.  Acids Res. 25:217-221.	for structural and sequence Gribskov, M. et al. (1988) CABIOS 4:61-66; st that match sequence patterns Gribskov, M. et al. (1989) Methods Enzymol. 183:146-159; Bairoch, A. et al. (1997) Nucleic Acids Res. 25:217-221.	Normalized quality score>GCG-specified "HIGH" value for that particular Prosite motif. Generally, score=1.4-2.1.
Phred	A base-calling algorithm that examines automated sequencer traces with high sensitivity and probability.	Ewing, B. et al. (1998) Genome Res. 8:175-185; Ewing, B. and P. Green (1998) Genome Res. 8:186-194.	
Phrap	A Phils Revised Assembly Program including SWAT and CrossMatch, programs based on efficient implementation of the Smith-Waterman algorithm, useful in searching sequence homology and assembling DNA sequences.	Smith, T.F. and M.S. Waterman (1981) Adv. Appl. Math. 2:482-489; Smith, T.F. and M.S. Waterman (1981) J. Mol. Biol. 147:195-197; and Green, P., University of Washington, Seattle, WA.	Score= 120 or greater; Match length= 56 or greater
Consed	A graphical tool for viewing and editing Phrap assemblies.	Gordon, D. et al. (1998) Genome Res. 8:195-202.	
SPScan	A weight matrix analysis program that scans protein sequences for the presence of secretory signal peptides.	Nielson, H. et al. (1997) Protein Engineering 10:1-6; Claverie, J.M. and S. Audic (1997) CABIOS 12:431-439.	Score=3.5 or greater
TMAP	A program that uses weight matrices to delineate transmembrane segments on protein sequences and determine orientation.	Persson, B. and P. Argos (1994) J. Mol. Biol. 237:182-192; Persson, B. and P. Argos (1996) Protein Sci. 5:363-371.	
TMHMMER	A program that uses a hidden Markov model (HMIM) to delineate transmembrane segments on protein sequences and determine orientation.	Sonnhammer, E.L. et al. (1998) Proc. Sixth Intl. Conf. On Intelligent Systems for Mol. Biol., Glasgow et al., eds., The Am. Assoc. for Artificial Intelligence (AAAI) Press, Menlo Park, CA, and MIT Press, Cambridge, MA, pp. 175-182.	
Motifs	A program that searches amino acid sequences for patterns that matched those defined in Prosite.	Bairoch, A. et al. (1997) Nucleic Acids Res. 25:217-221; Wisconsin Package Program Manual, version 9, page M51-59, Genetics Computer Group, Madison, WI.	

## **CLAIMS**

## What is claimed is:

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- 1. An isolated polynucleotide selected from the group consisting of:
- a) a polynucleotide comprising a polynucleotide sequence selected from the group consisting of NO:1-567,
  - b) a polynucleotide comprising a naturally occurring polynucleotide sequence at least about 90% identical to a polynucleotide sequence selected from the group consisting of NO:1-567,
    - c) a polynucleotide complementary to the polynucleotide of a),
    - d) a polynucleotide complementary to the polynucleotide of b), and
    - e) an RNA equivalent of a)-d).
  - 2. An isolated polynucleotide of claim 1, comprising a polynucleotide sequence selected from the group consisting of SEQ ID NO:1-567.

3. An isolated polynucleotide comprising at least about 60 contiguous nucleotides of a polynucleotide of claim 1.

- 4. A composition for the detection of expression of secretory polynucleotides comprising at least one of the polynucleotides of claim 1 and a detectable label.
  - 5. A method for detecting a target polynucleotide in a sample, said target polynucleotide having a sequence of a polynucleotide of claim 1, the method comprising:
  - a) amplifying said target polynucleotide or fragment thereof using polymerase chain reaction amplification, and
    - b) detecting the presence or absence of said amplified target polynucleotide or fragment thereof, and, optionally, if present, the amount thereof.
  - 6. A method for detecting a target polynucleotide in a sample, said target polynucleotide comprising a sequence of a polynucleotide of claim 1, the method comprising:
  - a) hybridizing the sample with a probe comprising at least about 20 contiguous nucleotides comprising a sequence complementary to said target polynucleotide in the sample, and which probe specifically hybridizes to said target polynucleotide, under conditions whereby a hybridization complex is formed between said probe and said target polynucleotide or fragments thereof, and
    - b) detecting the presence or absence of said hybridization complex, and, optionally, if present,

the amount thereof.

7. A method of claim 5, wherein the probe comprises at least about 30 contiguous nucleotides.

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- 8. A method of claim 5, wherein the probe comprises at least about 60 contiguous nucleotides.
- 9. A recombinant polynucleotide comprising a promoter sequence operably linked to apolynucleotide of claim 1.
  - 10. A cell transformed with a recombinant polynucleotide of claim 9.
  - 11. A transgenic organism comprising a recombinant polynucleotide of claim 9.

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- 12. A method for producing a secretory polypeptide, the method comprising:
- a) culturing a cell under conditions suitable for expression of the secretory polypeptide, wherein said cell is transformed with a recombinant polynucleotide of claim 9, and
  - b) recovering the secretory polypeptide so expressed.

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- 13. A purified secretory polypeptide (SPTM) encoded by at least one of the polynucleotides of claim 2.
  - 14. An isolated antibody which specifically binds to a secretory polypeptide of claim 13.

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- 15. A method of identifying a test compound which specifically binds to the secretory polypeptide of claim 13, the method comprising:
  - a) providing a test compound;
- b) combining the secretory polypeptide with the test compound for a sufficient time and under suitable conditions for binding; and
- c) detecting binding of the secretory polypeptide to the test compound, thereby identifying the test compound which specifically binds the secretory polypeptide.
- 16. A microarray wherein at least one element of the microarray is a polynucleotide of claim35

17. A method for generating a transcript image of a sample which contains polynucleotides, the method comprising:

- a) labeling the polynucleotides of the sample,
- b) contacting the elements of the microarray of claim 16 with the labeled polynucleotides of the sample under conditions suitable for the formation of a hybridization complex, and
  - c) quantifying the expression of the polynucleotides in the sample.
- 18. A method for screening a compound for effectiveness in altering expression of a target polynucleotide, wherein said target polynucleotide comprises a polynucleotide sequence of claim 1, the method comprising:
  - a) exposing a sample comprising the target polynucleotide to a compound, under conditions suitable for the expression of the target polynucleotide,
    - b) detecting altered expression of the target polynucleotide, and
- c) comparing the expression of the target polynucleotide in the presence of varying amounts
   of the compound and in the absence of the compound.
  - 19. A method for assessing toxicity of a test compound, said method comprising:
  - a) treating a biological sample containing nucleic acids with the test compound;
- b) hybridizing the nucleic acids of the treated biological sample with a probe comprising at least about 20 contiguous nucleotides of a polynucleotide of claim 1 under conditions whereby a specific hybridization complex is formed between said probe and a target polynucleotide in the biological sample, said target polynucleotide comprising a polynucleotide sequence of a polynucleotide of claim 1 or fragment thereof;
  - c) quantifying the amount of hybridization complex; and

- d) comparing the amount of hybridization complex in the treated biological sample with the amount of hybridization complex in an untreated biological sample, wherein a difference in the amount of hybridization complex in the treated biological sample is indicative of toxicity of the test compound.
- 20. An array comprising different nucleotide molecules affixed in distinct physical locations
  on a solid substrate, wherein at least one of said nucleotide molecules comprises a first oligonucleotide
  or polynucleotide sequence specifically hybridizable with at least about 30 contiguous nucleotides of a
  target polynucleotide, said target polynucleotide having a sequence of claim 1.
- 21. An array of claim 20, wherein said first oligonucleotide or polynucleotide sequence is
   completely complementary to at least about 30 contiguous nucleotides of said target polynucleotide.

22. An array of claim 20, wherein said first oligonucleotide or polynucleotide sequence is completely complementary to at least about 60 contiguous nucleotides of said target polynucleotide

23. An array of claim 20, which is a microarray.

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- 24. An array of claim 20, further comprising said target polynucleotide hybridized to said first oligonucleotide or polynucleotide.
- 25. An array of claim 20, wherein a linker joins at least one of said nucleotide molecules to said solid substrate.
  - 26. An array of claim 20, wherein each distinct physical location on the substrate contains multiple nucleotide molecules having the same sequence, and each distinct physical location on the substrate contains nucleotide molecules having a sequence which differs from the sequence of nucleotide molecules at another physical location on the substrate.
    - 27. An isolated polypeptide selected from the group consisting of:
  - a) a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146,
  - b) a naturally occurring polypeptide comprising an amino acid sequence at least about 90% identical to an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146,
    - c) a biologically active fragment of a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146, and
  - d) an immunogenic fragment of a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:568-1146.
    - 28. An isolated polypeptide of claim 27, comprising a polypeptide sequence selected from the group consisting of SEQ ID NO:568-1146.